

WHEN DO PEOPLE LEAVE IN-HOME SUPPORTIVE SERVICES?

A Thesis

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by

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Abstract  
of  
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Projections vary, but those who estimate populations agree that the number of retirees will increase dramatically as waves of Baby Boomers retire. No one can say for certain how many of the retiring Baby Boomers will require assistance to live out their years. The expectation is that about a quarter of California's population will be 65 or older by 2060, and more of them will be low-income women who live alone. An analysis of In-Home Supportive Services use offers insight into how the program has been used thus far to help low-income and disabled people 65 and older live safely in their own homes. After 10 years, the length of the study, almost a quarter of the study cohort was still in the program. As care models for the elderly meet more of their needs, knowing who have been users of In-Home Supportive Services can help understand that piece of the care puzzle.

\_\_\_\_\_, Committee Chair  
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\_\_\_\_\_  
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## Chapter 1

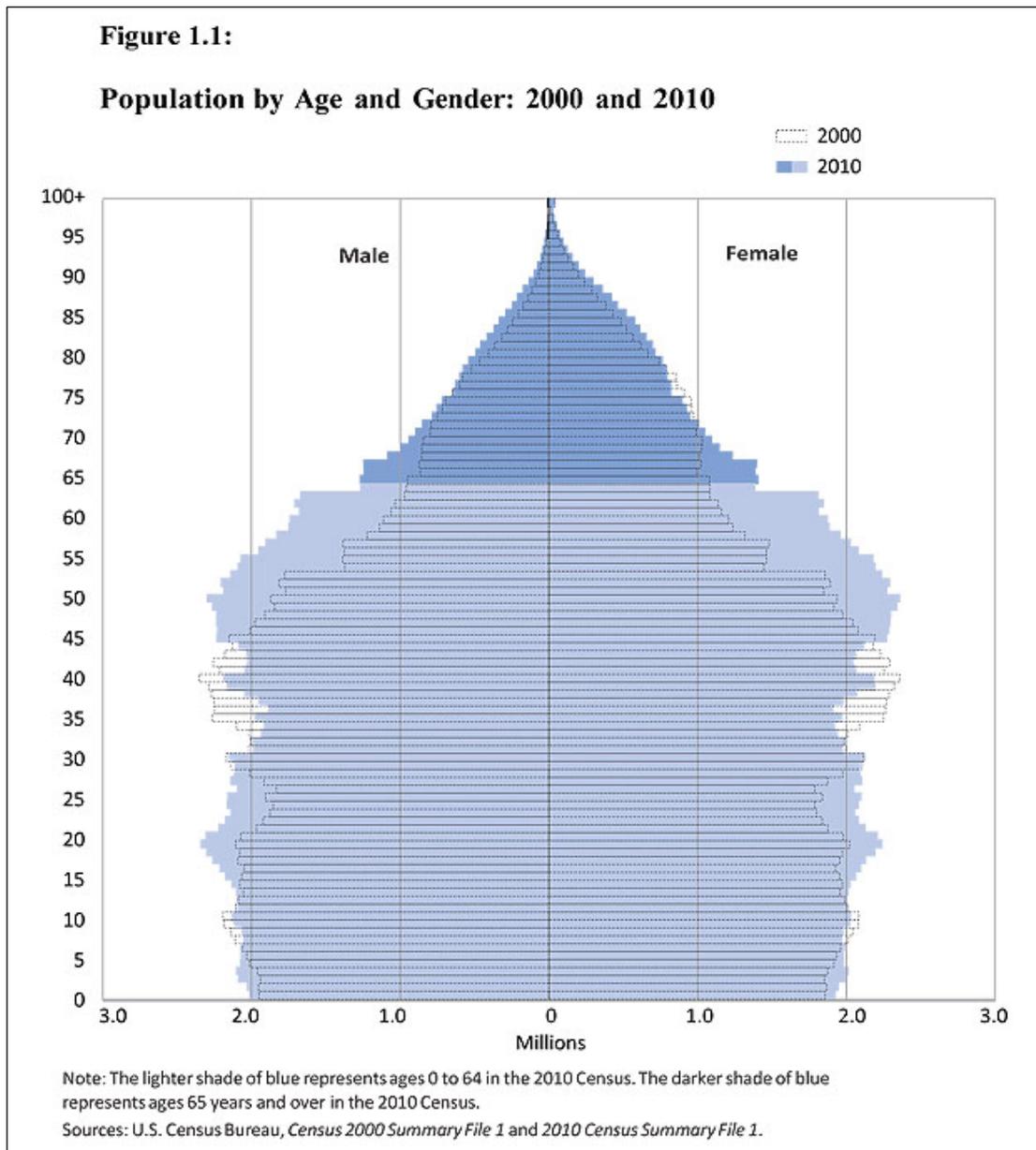
### INTRODUCTION

The Baby Boom is a phenomenon that began at the end of World War II, when military personnel returned to civilian life to marry and begin families. There are about 78 million Baby Boomers (born from 1946 through 1964) in the United States and 9.28 million of them are in California, according to U.S. Census figures. In 2011, Baby Boomers began turning 65, generally the age of retirement. The dramatic bulge in the number of retirees will not so much ripple across government delivery of services as it will steamroller (See Figure 1.1, following page).

Anticipating some of the questions that may arise could help determine how this nation adjusts its policies and programs. No matter the prevailing politics or the creation or deletion of policy, the population of Americans 65 or older is expected to be larger than the population of workers supporting such social programs as Medicare and Social Security. Analyzing data on current in-home care services for low-income elderly will help decision makers determine how to allocate resources for this aging population.

Social programs for elderly Americans are designed to help them “age in place” and will take on more importance as this population expands with the growing retirement of the Baby Boomers. “Aging in place” is living safely in the community rather than in an institution. In-Home Supportive Services is a key social program in California to keep frail elderly Californians in their own homes or homes of their choosing. The program pays caregivers to go to the homes of elderly clients to help them based on assessed need. In-Home Supportive Services in California, like many of the nation’s Home and

Community-Based Services programs, was an iterative creation of policies of and for the elderly in the United States. What I hope to determine with an analysis of data on In-Home Supportive Services use is when elderly clients leave the program. Determining duration and extent of use by the home-care clients will help policy makers balance an



expected increase of need for resources to pay for this program with the values policy makers and taxpayers place on caring for this burgeoning vulnerable population.

Anticipating potential costs and magnitude of care needs may spur innovations that keep this vulnerable population safe while upholding the social values expressed in legislation and court decisions to date.

### *Background Regarding the IHSS Program*

Policies allowing for in-home care have a lengthy history. They took root in the signing of the Social Security Act of 1935 that began paying old-age benefits to people 65 and older (Social Security Administration, n.d.). The Older Americans Act of 1965 codified government's role in ensuring that the needs of elderly Americans were part of policy considerations. The Older Americans Act has been amended several times to add to the scope of coverage and funding (National Council on Aging, n.d.) to include the issues of economic security, chronic disease, and safety. The Americans with Disabilities Act of 1990 was meant to end discrimination against people of all ages who have a physical or mental disability. It prevented government entities from forcing people with disabilities into institutions in order that they might live safely; the court in *Olmstead vs. L.C. and E.W.* of 1999 put aside issues of affordability in requiring that people with disabilities be allowed to live in the most integrated community setting available. For many of the elderly and disabled, that setting is their own homes (Rosenbaum, 2000).

Table 1.1 lays out a timeline of laws and policy changes that have led to current policies and helped create the social services that form a safety net for elderly Americans.

**Table 1.1: A timeline of policy changes regarding the nation's elderly**

Social Security Act	1935	The Social Security Act provides for Old Age Assistance and Old Age Survivors Insurance.
Older Americans Act	1965	Establishes the Administration on Aging within the Department of Health, Education and Welfare, and calls for the creation of State Units on Aging. Medicare, a health insurance program for the elderly, is created as part of the Social Security Act.
Age Discrimination Act	1967	Prohibits age discrimination in employment.
National Institute on Aging	1974	Social Security Amendments authorize protective, adult day-care, homemaker, and transportation services; nutrition help; and health support. National Institute on Aging is created to research the diseases and problems of an aging population. Housing and Community Development Act provides for low-income housing for the elderly and disabled.
Americans with Disabilities Act	1990	Americans with Disabilities Act extends protection from discrimination in employment and public accommodations to persons with disabilities.
Olmstead decision	1999	The Supreme Court in <i>Olmstead vs. L.C. and E.W. of 1999</i> put aside issues of affordability in requiring that people with disabilities be allowed to live in the most integrated community setting available.
Affordable Care Act	2010	The Affordable Care Act is enacted to increase the quality and affordability of health insurance, lower the uninsured rate by expanding insurance coverage, and reduce the costs of health care.
CLASS	2011	CLASS (Community Living Assistance and Supports) program, part of the Affordable Care Act, is created.

Source: Administration on Aging

In California, the In-Home Supportive Services program was created as the Aid to the Totally Disabled program was ending in 1974. That program had been an offshoot of an effort to keep those who were disabled by polio in the community, but was ended

because of the effectiveness of the polio vaccine. Supplemental Security Income was created in 1974 to provide income for low-income elderly and disabled people, but it did not cover attendant care, so California created the Homemaker Chore Program that later became In-Home Supportive Services. Early clients had difficulty finding caregivers, which led to the creation of county-level Public Authorities to match trained caregivers with the clients who needed them (Seyden & Robert, 2006). To qualify for the program, clients must be California residents, have a Medi-Cal eligibility determination, and have a Health Care Certification form signed by a health-care provider. They must live at home or in a home of their choosing, as opposed to acute-care hospitals, long-term care facilities or licensed community-care facilities (California Department of Social Services, 2007).

Elderly clients are considered frail: They are defined as needing assistance with tasks such as getting in or out of bed, preparing meals, or using the telephone, but could live at home with such help. Such self-care tasks are categorized as activities of daily living (ADLs) and Instrumental Activities of Daily Living (IADLs) are considered tasks such as using a phone or shopping for groceries.

Caregivers providing assistance can be informal caregivers, such as family members who give care for free, and formal caregivers, who are paid for the services they provide. In California, the number of people served by formal caregivers in the In-Home Supportive Services program grew by 4.6 percent to 10.5 percent each year from 2000 to 2008, after which there was a very slight decrease from 429,895. The number of recipients in fiscal year 2009-10 (July 1-June 30) was 428,962; it was 432,749 in fiscal

year 2010-11; and it was 432,650 in fiscal year 2011-12 (California Association of Public Authorities, 2007), demonstrating a churn among users who cycle in and out of the program. The program serves disabled people of all ages; however, the vast majority of clients are those 65 and older.

The population of elderly home-care clients in California hovered around 1 in 10 of the 65+ population in the state (U.S. Census Bureau, November 2011) in the last three years recorded. At the same time, the Great Recession constricted state and local spending on all programs, including social programs for vulnerable populations. Currently, 50 percent of the cost of providing in-home care is born by the federal government through Medicaid, 32 percent is paid by California through the Department of Social Services, and county social service departments pick up the remaining 18 percent (Adkisson, Vogel, Korber & Orr, 2009). Two tensions may have helped to limit growth in numbers of clients in the IHSS program despite an increase in elderly residents. First, the state tried to cut the number of hours it would support for providing care for clients, thereby saving money. Second, counties have a financial disincentive to expand programs for aging in place: counties pay nothing toward nursing-home care, so they are financially better off if elderly residents are moved into nursing facilities rather than remain in their homes (Legislative Analyst's Office, Feb. 17, 2012).

One element in favor of home care over institutionalization is the "bottom line" with respect to relative cost. As nursing homes in the 1970s and 1980s flourished, cost of care for the indigent began to climb and the federal government looked for ways to take care of the less frail elderly in less institutional settings. In-home care provides one

solution to the requirement of the least restrictive setting and containing the cost of care. In Sacramento County as of January 2014, a caregiver averaged about \$10.80 per hour, which is \$1,728 per month or \$20,736 per year. The maximum number of hours available to a client is 283 per month, so the cost of the program per client is \$3,056 per month or \$36,677 per year at a maximum (Sacramento County IHSS Public Authority, n.d.).

Caregivers were allowed to work only 40 hours per week, so clients who need more than 160 hours of care per month may require several caregivers. Conversely, in 2011 the nationwide average cost of nursing-home care was as high as \$7,269 a month (\$87,228 per year) for a private room and as much as \$7,634 per month (\$91,615 per year) for those with Alzheimer's disease or other forms of dementia (MetLife Mature Market Institute, 2011). The cost of care for the low-income elderly is born by Medicare and Medicaid, so costs circle back to policies about the obligations of government and use of resources to live up to stated values. Yet it should also be noted that the services covered under IHSS and those covered under nursing home care are not equivalent, as nursing-home costs may cover medical care, monitoring 24 hours per day, seven days a week, plus meals. By contrast, home-care costs such as IHSS cover only caregiver tasks. Issues of costs and what pool of funding covers those costs are a discussion for a future study of the policy and political landscape of caring for the nation's low-income elderly.

### *Organization of this Thesis*

I will analyze statistical data on client use of In-Home Supportive Services to try to answer the question "When do Clients Leave the In-Home Supportive Services program?" My approach is a quantitative assessment of what we can learn about use of

such services with a goal of revealing information that can help decision makers make thoughtful choices about allocating resources. This chapter examines the genesis of home-care programs and offers a brief description of California's In-Home Supportive Services program and the policies that led to current home-care programs.

In Chapter 2, I discuss literature from the past 25 years to assess what is known about home care clients and caregivers. That period was chosen because the policy and presence of home care born in the early 1980s was no longer in its infancy, and changing policies cemented the use of such programs. The chapter explores themes that help frame why it is important to learn when clients leave the In-Home Supportive Services program: who receives home care and what to what level; what we can learn from how rapidly clients and caregivers cycle in and out of home-care programs; and what risks negatively affect use and diminish efficacy of home-care programs.

Chapter 3 explains the methodology used in my research and the details about clients included in the database. It asks what we can learn from regression analysis including as independent variables client age, demographic information, tenure in program, progression of hours of care needed, and race and ethnicity. Data will be fed into Stata so that elements of client categories can be assessed in isolation through regression.

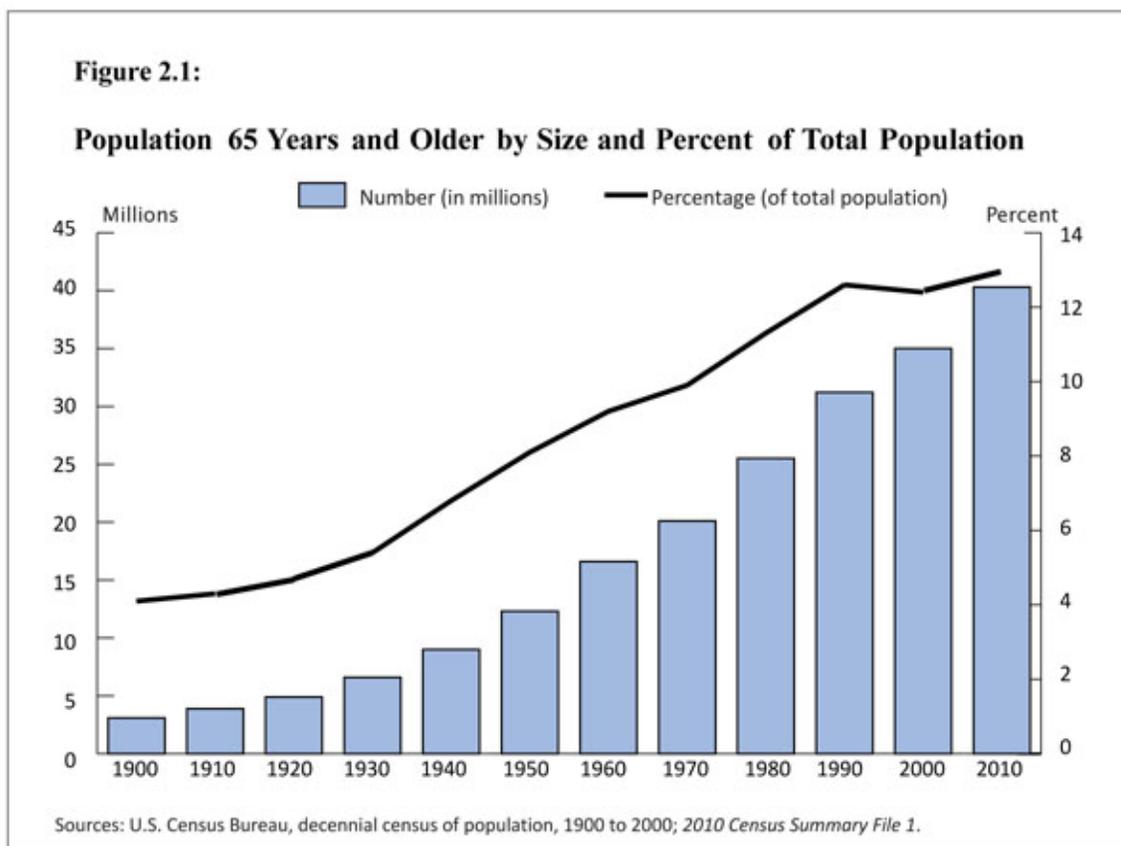
Chapter 4 presents key findings from my analysis of data on users of In-Home Supportive Services in seeking an answer to the question, "When do people leave the In-Home Supportive Services program?"

Chapter 5 ties the results together for what they may show, and discusses how this research might inform further studies or what missing information it reveals. Also, growth in the 65+ population is discussed: In order to examine what might happen if the trends change, either to the number of elderly or those who pay into social services or give care to the elderly, I will discuss California Department of Finance and U.S. Census projections.

## Chapter 2

## WHAT CURRENT LITERATURE TELLS US

Literature on at-home care is quite extensive from the early 1980s through the 1990s, but for purposes of analyzing when clients leave the In-Home Supportive Services (IHSS) program, I examined literature from the late 1980s and onward. My particular concern is with the population of home-care clients who are 65 and older. The leading edge of the Baby Boom, people born from 1946 through 1964 (U.S Department of Commerce), began turning 65 as of 2011. The 65+ population grew 15.1 percent, faster than the previous decade and faster than the 9.7 percent of the population in general from



2000 to 2010. According to the U.S. Census, the expansion of those 65+ included an increase from 3.9 million to 5.1 million of the people 85 to 94 years old. The Baby Boom promises a future of more and older people, as illustrated in Figure 2.1 (previous page).

I reviewed literature from about the past two decades (Appendix F) with a goal of learning more about when people in In-Home Supportive Services leave that program, as their tenure and history of need will help determine what resources are required if the IHSS program expands along with the elderly population. Three themes emerged to help me understand the group of people who are 65 or older and disabled and who are able to remain at home with help: 1) the characteristics of elderly users of in-home care services and expected trends of that population; 2) how churn (the rate of clients entering and exiting the program) might help policy-makers estimate the need for resources over time; and, 3) how risks to elderly clients and their caregivers could negatively affect use of the program as well as fail to uphold the promise of legislation.

#### *Who uses In-Home Supportive Services*

In this section, I discuss what we know so far about who uses in-home care services and the factors that make them clients. A survey of research reveals a portrait of home-care clients and fills in some details. Kadushin (2004) reviewed studies from 1985-2004 of in-home care users to help guide social workers in their assessments of client needs. Users of In-Home Supportive Services are assessed by county social workers who determine their level of need for services, so Kadushin's work directly applies to this study. She and others found that in-home service users tend to: 1) be women who live alone (Administration on Aging, 2012; California Department of Social Services, 2002;

Chapin, Zimmerman, Macmillan, Rachlin, Nakashima, Moore, Schmidt & Cline, 2000; Hartmann & English, 2009; Kadushin, 2004; Katz, Kabeto & Langa, 2000); 2) have a number of conditions requiring assistance with activities of daily living, such as meal preparation or getting out of bed (Hartmann & English, 2009; Kadushin, 2004; Slaug, Schilling, Iwarsson & Carlsson, 2011); and 3) be more likely to live in poverty (Hartmann & English, 2009).

More specifically, poverty is a persistent reality for clients of in-home services. For the elderly to qualify for California's In-Home Supportive Services (IHSS), they must be eligible for Supplemental Security Income, a program for low-income people who are blind, disabled or 65 or older (California Department of Social Services, 2007). Again, women are the majority of users of in-home care. Part of the reason for their representation in this population is simply one of demographics: women tend to live longer than men and therefore require more services (Howes, 2009; Katz, Kabeto & Langa, 2000). Additionally, pension realities keep as many as 12 percent of women vs. 6.6 percent of men in poverty. Some of the reasons include: women earn less during their working years than men, they are less likely to have worked in a job category for which there was a pension (some of the women now retiring never worked outside the home or for pay), and women's retirement earnings are based on a lower paid work history. Additionally, women are much more likely to leave the workforce to be caregivers to frail relatives or to young children, and they are much more likely to work part time.

Marriage has a positive, though not a permanent economic effect. Married women fare somewhat better, particularly if they married someone with a pension, but when

women become widows, their survivor benefits are less than what the couple had been collecting (Hartmann & English, 2009). Overall, women live longer, requiring their smaller incomes to cover costs over a longer time and an increased likelihood of higher medical expenses. By 2050, women 65 and older are expected to outnumber men in that age group by as many as 10 million, meaning more elderly women of limited means. It is also expected there will be proportionately fewer workers to pay into Social Security, the main source of income for the elderly, and there likely will be fewer workers to care for the burgeoning population (Hartmann & English, 2009).

One other expected demographic change is an increase in the number of non-white people in the 65+ population in California. Minorities typically earn less than white people; California's large minority population is in major part a result of the immigration of people who have limited abilities to speak and read English and who tend to have been economically disadvantaged over their lifetimes. In addition to having amassed fewer assets, they are more likely to have more chronic health problems as a result of lower lifetime incomes (California Department of Aging, 2013). The needs of a diverse older population should be taken into account in policy discussion about resources that assist the elderly.

Choosing how to apply resources is an exercise of the 65+ population, as well as policy makers. Income is one key indicator, but it is not the only determinant of perceived quality of life. As this burgeoning population ages, members' sense of quality of life changes as well; this in turn affects overall health and fitness, particularly when having to decide how to use a static or fixed income. Ultimately, choices such as buying

food or paying for medicine could affect clients' needs for in-home services, and generally adversely.

Maintaining health also is determined by choices. Areas with attractive and accessible outdoor areas promote fitness through exercise (Hannon, Sawyer & Allman, 2012). Conversely, elderly people may perceive cracked, uneven, or unpaved sidewalks as threats that could encourage falls. African Americans in Southern urban areas and whites in suburban areas designed around vehicle travel are discouraged from the outdoor physical activity that could improve or maintain their overall health. Disadvantaged neighborhoods, either because of crime or deteriorating roads and sidewalks, also can discourage residents from venturing outdoors (Buys, Borch, Drentea, LaGory, Sawyer, Allman, Kennedy, & Locher, 2012). Those who qualify for in-home care are generally those with low incomes and who are more likely to live in such neighborhoods. However disadvantaged the neighborhood may be, after living in one place and developing routines and familiarity, people develop what Oswald, Jopp, Rott and Wahl (2010) refer to as place attachment, so the perception of neighborhood quality and attachment to it plays into perception of quality of life. Small living spaces also are seen as assets with advancing age, as smaller spaces are easier to navigate safely (Oswald, Jopp, Rott & Wahl, 2010).

Getting to and from home is a key concern for many elderly who no longer can drive, for physical or economic reasons, and it may be a factor in self-neglect. The California State Plan on Aging 2013-17 identifies transportation as a potential barrier to allowing adults and adults with disabilities to participate fully in their communities

(California Department of Aging, 2013) and includes strategies to identify and address transportation needs. Lack of ready and convenient transportation may require choices about going to medical appointments for regular monitoring of chronic conditions or going to a grocery store for food or a pharmacy for medicine. Transportation is one of the needs addressed by In-Home Supportive Services that ultimately can affect level of services required to live in the community.

Other quality of life issues can directly affect the well-being of the elderly. Falls, addressed with additional detail in the discussion of risk, cause anxiety among the aging that increases with age and progression of frailty (Boyd & Stevens, 2009; Schepens, Sen, Painter & Murphy, 2012). Such fear and the incidence of falls are likely to increase as the population of elderly aging in place grows larger and older.

In summary, current literature reveals details about who uses in-home care services and the factors that affect level of need. Users of home-care services are likely to be women who live alone, who require help with a number of daily activities in order to live safely on their own, but because they have low incomes and face choices of how to use their limited resources, their choices can lead to further disability. In California, users of home-care services are increasingly members of minority communities. The needs of this home-care client population are not constant, however, and measuring fluctuations will help policy makers consider how to incorporate a certain amount of uncertainty into their response.

*Churn, the measure of clients and caregivers into and out of the program*

Clients in the IHSS are not a constant: each month, clients enter and leave the program, as do formal caregivers. This section addresses how the concept of churn might inform decision-making and resource allocation, and how it can affect the level of services and tenure of clients in a home-care program.

Churn is a label taken from businesses with subscriptions, such as those for telephone service, cable television, or newspapers. It is a measure of the percentage change over time in users; subscribers typically do not enter a program and remain in perpetuity. They sign up for as long as a subscription offer meets their need, such as for the duration of special pricing, then they discontinue the service. In measuring churn, companies seek to identify causes and to minimize it, to convert short-term users to habitual ones. In its strictest sense, churn is the number of subscriptions a company has to sell just to maintain a certain subscription level; growth requires adding more subscriptions than the number that are cancelled (Consoli, 1995; Morton, 2004). Consoli (April 29, 1995) quoted marketing expert Leon Levitt as saying that a 100,000-circulation newspaper could save \$300,000 per year by reducing churn from 50 percent to 40 percent. In this way, companies can determine a cost to the way they do business, such as how customers are treated. Or we could determine whether clients' in-home care needs are met and what resources or policy changes are needed.

In-Home Supportive Services also has a rate of churn, although trends in the number of potential clients would more likely indicate demand rather than termination. A low rate of churn for in-home programs could signal a higher demand for at-home care

and require a higher commitment of resources. It also may indicate the type of demand from clients: a larger number of qualified low-income elderly may seek to age in place to avoid having to move to an institution. While some clients would leave the program, either by entering institutions or at death, their numbers are more likely to be offset by new applicants, based on trends of an aging population (Administration on Aging, 2012; Hartmann and English, 2009; Kadushin, 2004). If new potential clients needed fewer hours and services than those who were leaving, the net budget change could be positive but it is unlikely. A larger population also would increase its need for services as it aged, thus potentially costing more in resources. If more clients enter at age 65 and remain in the program longer with maximum assistance, such a program without other adjustments could become unsustainable to states and counties. Capping the number of clients receiving in-home care countermands the Olmstead ruling (1999) that allows clients to live in the least restrictive setting, regardless of cost. Identifying churn can help policymakers adequately plan and adjust for costs over time. Clients churn, and as importantly, so do caregivers.

Turnover in hired caregivers can have consequences beyond strict costs: the turnover could be regarded as a crisis if it threatens the quality of care for clients. Banijamali, Hagopian & Jacoby (2012) in an examination of turnover of home-care workers, found that 76 percent of states in 2005 reported that recruitment and retention of home-care workers was a major policy issue. Given that the trends forecast an imbalance between those needing care and those available to give it (Dill & Cagle, 2010; Hartmann & English, 2009; Howes, 2009), such an imbalance may have more serious consequences

for the availability and quality of in-home care. Additionally, replacing those workers, much like replacing subscribers, has a cost. In a study of more than 31,000 who left jobs as home care workers in the state of Washington from 2007 through 2010, Banijamali, Hagopian & Jacoby (2012) estimated the cost to replace home-care workers per worker was \$981-\$6,368, which accompanied a decline in care because of inexperienced new workers. In assuming a 35 percent turnover rate in caregivers based on the 25 percent turnover they found and projecting populations into the future, the authors estimate that Washington State would need to have trained 440,000 home-care workers by 2030 to meet the demand from the expected increase in home-care clients. California's demand could be in the millions based on population alone. The Institute for the Future of Aging Services said in 2007 that home-care agencies reported turnover rates of 25 percent to 50 percent per year (Butler, Simpson, Brennan, & Turner, 2010; Dill & Cagle, 2010). The question becomes whether caregiver churn will prompt more clients to enter nursing facilities or risk staying in their homes despite unpredictable caregiver availability.

#### *Risks to a vulnerable population*

Aging in place is a laudable goal, but the reality for clients means that living at home exposes them to certain risks, such as risk of abuse by self or caregivers, formal and informal, or adverse events, such as injury from falls, sudden illness, medication mixups, or suicide. The risks are in addition to their disabilities and consequent need for assistance.

Risk can be divided into risk for elderly clients and risk for their caregivers. Either type of risk ultimately affects the quality of care or indeed whether care is given to

the increasingly vulnerable elderly. For the elderly clients, their changing physical needs are at the heart of how they gauge their quality of life (Tang & Pickard, 2008). As mentioned previously, their sense of attachment to their homes, their perceptions of their neighborhoods and familiarity with surroundings are comfort factors. But as they age, their needs change as do their abilities to live without assistance (Chapin et al. 2000), and their exposure to risk increases.

The collision of the numbers of elderly with public-budget constraints will be an ongoing and worsening problem without adjustments in policy. States have continued to expand Medicaid funding for in-home care in spite of a lag in recovery to state revenues since the Great Recession. Many agencies downsized departments rather than cut the services (Scully, Cho, Hall, Walter, Walls, Fox-Grage & Ujvari, 2013), such as Medicaid, that are mandated by federal rules. Caseloads for Adult Protective Services also increased from 2010 to 2012 for victims of abuse, neglect, and exploitation, without an increase in funding in many states (Scully et al., 2013). The increased caseload signals more cases of potential abuse or better reporting and that the load is not being adequately addressed.

Abuse takes many forms. For this vulnerable population, the World Health Organization has declared elder abuse as a violation of one of the basic fundamental human rights. The National Center on Elder Abuse (NCEA) (n.d.) is quoted as defining elder abuse as “an act referring to any knowing, intentional, or negligent act by a caregiver or any other person that causes harm or a serious risk of harm to a vulnerable adult” (Dong, Simon, Mendes de Leon, Fulmer, Beck, Hebert, Dyer, Paveza & Evans, 2009). An NCEA research brief aggregating articles and case studies said one in three

65+ adults has a disability, which is about 14 million people according to the 2010 American Consumer Survey of the U.S. Census, and of those, 30 percent (more than 4 million) reported one or more types of abuse, including physical, verbal or financial abuse. Women are more likely than men to be abused, and advancing age also increases the likelihood of abuse (NCEA, n.d.). Women are more likely than men to live alone, and they live longer, therefore are more exposed to risk of abuse (Katz, Kabeto & Langa, 2000).

Some of the abuse was reported by abusers. A separate NCEA brief (n.d.) cited published articles that indicated people with Alzheimer's disease, a growing population, or other dementias were abused verbally or physically, or neglected. In fact, 60 percent of caregivers said they had been verbally abusive; as many as 10 percent of caregivers reported being physically abusive, and 14 percent reported neglect of their clients. Twenty percent of the caregivers expressed fear of becoming violent with those in their care. Of the 5.3 million Americans with Alzheimer's, 5.1 million are 65 or older.

Elder abuse can come at the hands of informal, or unpaid, caregivers who are spouses or family members. It involves a complex change in relationship for the elderly person from caregiver to one who needs care, from adult-in-charge to a dependent and vulnerable person (Dong et al., 2009). Additionally, those with the greatest risk of abusing are relatives younger than 60 who abuse alcohol or who have experienced a recent decline in mental health. They frequently are the primary caregivers and live with the elder (Bratteli, 2003; NCEA, n.d.). The effects of recent changes in laws to allow family members to be paid caregivers are unknown as of this writing. Clients abused by

informal caregivers then may have needs for care from formal caregivers that do not match the needs assessed by a social worker.

Self-neglect is a separate risk to the elderly. Dong et al. (2009) characterize self-neglect as a “refusal or failure to provide himself/herself with adequate food, water, clothing, shelter, personal hygiene, medication or safety precautions.” Some self-abuse or neglect is deliberate: making the most of a scarce resource, such as income, might prompt an elderly person to choose between food and medicine, for example. Even though increased mortality is associated with self-neglect, health care professionals or social service agencies allow elders with higher levels of cognitive functioning to refuse suggested interventions in the spirit of allowing the elderly person the opportunity for self-determination, as laws promote. For those who are not as self-aware, self-neglect may be recognized by the elderly person if it causes emergency hospitalization.

Adverse events, such as falls, are a particular fear for the elderly. As people age, a small dwelling is preferred because it is easier to navigate safely (Boyd & Stevens, 2009; Hannon, Sawyer & Allman, 2012; Schepens, Sen, Painter & Murphy, 2012). Falls and fears of falling can become a self-fulfilling prophecy: if an elderly person curtails activities that could maintain fitness, lack of fitness could lead to a greater tendency to fall, increasing the risk of death or hospitalization.

Hospitalization is one outcome of adverse events, which can be falls, a sudden illness, or medication errors (Doran, Hirdes, Blais, Baker, Poss, Li, Dill, Gruneir, Heckman, Lacroix, Mitchell, O’Beirne, White, Droppo, Foebel, Qian, Nahm, Yim, McIsaac, & Jantzi, 2013). The authors’ regression analysis of multiple data sets

determined that 13 percent of the home-care clients of an Ontario population experienced an adverse event annually, many requiring long-term institutionalization or dying from the event. Monson, Westra, Oancea, Yu & Kerr (2010) found annual hospitalization rates of 14 percent to 20 percent in their meta-analysis of 71 studies on home health care, and noted that rates for older clients were higher. Institutionalization also can follow a client's propensity toward violent outbursts or wandering (Annersteldt, Elmstahl, Ingvad, & Samuelsson, 2000). Sudden death is not specifically related to an adverse event, and it is not always accidental.

The suicide rate among the elderly in the United States is highest among those 65 and older who are divorced or widowed, about one every 90 minutes, according to the Department of Health and Human Services (Thobaben & Kozlak, 2011). The elderly face numerous issues whose outcomes are, in general, steadily worse over time: declining health, shrinking finances, death of loved ones, more social isolation, and a higher incidence of depression. They are more likely to fear for their safety and be more at risk for abuse (Chapin et al., 2000; Dong et al., 2009; Doran et al., 2013; Schepens et al., 2012). The risks also affect their caregivers.

Caring for someone with increasing physical or cognitive disabilities can be emotionally and physically draining. Paid in-home caregivers who are younger tend to change career paths away from this difficult employment because of the low pay and the lack of health insurance in caregiving. California does offer health insurance to a limited number of paid caregivers who can meet the requirement for number of months employed as a caregiver for a threshold number of hours (Sacramento County, 2014). Yet

the number of paid workers who can be insured is limited, and caregivers are subject to restrictions out of their control, if a client is hospitalized for any length of time, for example. And although caregivers in California are given training before they can care for clients, many caregivers enter the occupation ill-prepared for the demands of an elderly person with a number of functional needs (Banijamali, Hagopian, & Jacoby, 2012; Butler et al., 2010).

Other details of agency-paid caregivers emerged from the literature. Butler, Simpson, Brennan & Turner (2010) found that half of the paid caregivers in their Maine regression analysis had only high school educations, their average age was 46, and 92 percent were women. Nearly two-thirds of the agency-paid caregivers reported household incomes below \$20,000, and while 25 percent had no health insurance and only 5 percent were insured by their agencies, most relied on government health-care programs such as Medicare. In California, paid caregivers had the highest rates of rates of poverty. California home-care workers averaged 43 hour of work per week but earned an average of \$1,970 per month and depended on food stamps. Like their counterparts in Maine, they had poor access to health care (Hoffman & Wallace, 2012).

Of the caregivers who were family members in a Swedish study, 67 percent were taking care of a spouse and 76 percent of the caregivers were women. A study of long-term care by Kaye, Harrington & LaPlante (2010) found the same overall results, adding that as elderly caregiving women were widowed, they may be cared for by an adult daughter or a son. The family caregivers reported negative effects on their physical and mental health, sleep interruptions, and social isolation. They struggled in particular when

the person in their care was prone to falls or to confusion or nighttime wandering. As care needs escalate, caregivers who are family are more likely to begin to push to institutionalize the frail elderly (Chapin et al., 2000). And as mentioned, institutionalization also can follow a client's propensity toward violent outbursts or wandering (Annersteldt, Elmstahl, Ingvad, & Samuelsson, 2000).

Caregivers are subject to the outbursts of clients, and sometimes to mistreatment by a client's family. As many as 92 percent of all health care and social service workers have experienced abuse or violence by patients (Campbell, McCoy, Burg & Hoffman, 2014). When a caregiver feels threatened, care delivery will suffer and job satisfaction decreases. The authors' review of related literature found that patient aggression and violence toward workers was underreported. They also asserted that clients who live in high-crime areas were more likely to be abusive to caregivers.

Caregivers are subject to risk and abuse, much as clients are, whether they are caring for a family member or work for an agency for pay. An examination of the population in need of care may help to determine what policies are required to make such care optimal for clients and for the people who help them live safely.

*What are the gaps in the literature?*

The literature effectively and collectively describes a client of in-home care programs as mostly likely a woman who lives alone and who could not stay in her own home without help with a number of activities, such as meal preparation or getting out of bed. Policies favor keeping elderly people in their own homes as long as it is safe, but

there are inherent risks: falls, mixups with medicine, abuse or neglect, or sudden catastrophic illness. The risks increase with age.

Also facing this growing population is a likely shortfall in caregivers. Many current paid caregivers earn so little that those in California live in poverty and rely on social programs such as Medicare and food stamps and face a future of needing care in their elder years. If current trends in population growth are borne out, the elderly population will continue to grow much faster than that of the workers who will pay into social services program or provide the labor needed for caregiving. Risk to clients and caregivers was well-documented, although none analyzed specifically when it might prompt clients to leave home care.

By analyzing data on California's clients of In-Home Supportive Services, I will determine a relative portrait of how long people typically are clients and what their level of need is when they ultimately leave the program. Knowing more specific answers about level of use will help inform policy decisions about allocating resources if the population grows as large as anticipated. Quantifying need for services also may help determine whether other policies could increase the sustainability of allowing as many people as possible to safely age in place, such as changes to transportation, nutrition and health-care systems or alternative types of care programs.

## Chapter 3

### METHODOLOGY

The expected bulge in the number of retirees has implications for programs for the elderly. My study of data on In-Home Supportive Services clients to determine when users leave the program showed how intensely the elderly used the program over a 10-year period. I analyzed the data a number of ways to help identify which types of people were served. The information may help uncover public policy solutions that can be used to address future needs of the growing population of Californians 65 and older. In this chapter, I summarize the analysis methods and data I used for this study.

#### *The data*

My research for this thesis uses quantitative analysis of secondary data set of In-Home Supportive Services (IHSS) clients. The California Department of Social Services database holds information about payments made to caregivers on behalf of clients, and the payment history reflects level of usage by the elderly clients. An analysis of these data can help answer my research question, which is: “When do Clients Leave the In-Home Supportive Services program?” My analysis of the history of use will illuminate details for what to expect if no policies are changed. The discussion going forward could include how to adjust for the expected dramatic increase in the number of elderly Californians by 2060 and address what could be changed before 2060 to help this population stay in the least restrictive setting possible, as is required by law. Figures and

tables examine data through 2060 to show that the numbers of retirees is expected to increase after 2050, rather than fall as a natural consequence of the wave's end.

The IHSS client group in this study represents a population that is protected under medical privacy laws. Subsequently, rather than assess each client's disabilities for this analysis, monthly authorized hours will demonstrate how much help was needed for elderly clients to remain safely in their own homes. Specific disabilities are a matter of medical privacy, so the number of authorized hours, to a maximum allowable of 283 per month, then becomes a proxy for the kinds of help clients required. For example, the number of hours authorized for caregivers does not indicate whether a client had cognitive disabilities or mobility issues, only that a certain level of need was determined. Additionally, because of possible cognitive issues or privacy concerns, I used a secondary data set to assess program usage by individuals to avoid involving this vulnerable population more directly.

Permission to use the data set on the In-Home Supportive Services clients was granted to me after approval by the Committee for Protection of Human Subjects of an Information Practices Act request. The approval requires that no identifying data be used in my research and that only data would be assessed. The approval precluded interviews or surveys. Once approval was granted, the Department of Social Services again reviewed my request and then assigned an analyst to work with me to generate data to inform this research. Additionally, I pledged that the request was for an academic purpose, that the data would be protected and not broadcast or put on a network, and that there was a responsible party at the University to help safeguard this information.

The initial data set included a cohort of 5,000 randomly generated IHSS clients, in numbers reflecting the percentage of population of each county relative to all of California. One client name was removed, as the client's birth year was listed as 1864, making her 140 in 2004 and considerably outside the age group of 65-110 that was expected. Clients were tracked as individuals from January 2004 through January 2014, with authorized caregiver hours noted in the periods each January and July for which clients qualified. Over the period of the study, the cohort shrunk, eventually to 1,447 in January 2014, reflecting that some clients died, entered nursing homes or otherwise left the program. Some clients left the program and returned, indicating that churn is one reality of the program. Churn, mentioned in Chapter 2, is the entry and exit of the number of a population, in this case, 65+ users of the In-Home Supportive Services program. Expected patterns of use also will help in the discussion of policy adjustments.

#### *Methodology and key variables*

Information on individual clients includes gender, age, race and ethnicity, when the client appeared in a reporting period (indicating persistence) and number of authorized hours of paid caregiving in their final reporting periods. Data came from the Case Management Information Payrolling System, the state database of payments for caregivers of In-Home Supportive Services clients. The data set did not include any information about households, such as marital status or education level. I noted the number of hours listed as each client left the program or as of January 2014, for those who have been IHSS clients throughout my study period, and I tallied the total number of hours used by each person, as well as how many times they were assigned hours. I also

translated their birthdates into ages as of 2004. Names and birthdates were provided for me to construct a cross-sectional spreadsheet to follow the 4,999 individuals throughout the study period, but for privacy purposes, names and birthdates were not part of this analysis. Table 3.1 provides variable labels, descriptions, and sources for the variables used in my analysis.

I examined three models to gauge amount and intensity of use (Table 3.1, Page 31). In all models, the independent variables are: county by size of caseload (1,000-9,999 cases or 10,000 or more; 1= yes for either), gender (1 if female, 0 if male), age in 2004, and ethnicity (categories for 1 if yes and 0 if no, with white as a baseline). Model 1 uses as a dependent variable the total hours authorized for each person throughout the entire study period. Model 2 uses the number of hours assigned in final period listed for each person. Model 3 tallies the number of times from January 2004 through January 2014 that clients were assigned caregiving hours. I chose a 10-year study period with the assumption that it was enough time to illuminate total persistence in the program, as well as churn.

In Model 1, in which total hours in the study period are a function of county size (as demonstrated by caseload), gender, age, and ethnicity, I expect that being female, older, and in the program longer will mean a higher number of total hours, all positive effects. In Model 2, I expect that a higher number of hours in each client's final reporting period will be positively affected by gender and age and indicate the upper limit of usefulness of the program for a client. The effect of county of residence was unknown.

**Table 3.1 Variable Labels, Descriptions and Sources**

Variable Label	Description	Source
Dependent variables		
Model 1: Total hours (converted: 1=1-999, 2=1,000-1,999, 3=2,000-2,999, 4=3,000- 3,999, 5=4,000-4,999, 6=5,000+	Sum of hours authorized for each client in January and July of each year from 2004 through (January) 2014, 1 through the maximum of 5,943 hours	California Department of Social Services
Model 2: Hours at exit (converted: 1=1-30, 2=30.1-60, 3=60.1-90, 4=90.1-120, 5 =120.1-150, 6=150.1-180, 7=180.1-210, 8=210.1-240, 9=240.1-270, 10=270.1-283)	Number of final hours authorized, 1 through the maximum of 283.	California Department of Social Services
Model 3: Persistence of use	Number of periods in which individuals had hours authorized for paid care-giving (21 maximum)	California Department of Social Services
Independent variables		
County size by caseload (2) Medium = 1,000-9,999; Large = 10,000+	Caseloads compared with counties with fewer than 1,000 cases as baseline	California Department of Social Services
Female	Dummy variable for gender, 1 = female	California Department of Social Services
Age in 2004	Converted from birthdate, 65 to 108 in this study	California Department of Social Services
Ethnicity (5) -Black; -Hispanic; -Asian; -Pacific Islander; -Alaska Native or American Indian	Dummy variables; 1=yes: Races compared with white (matching those categories used by the state Department of Finance).	California Department of Social Services and the Department of Finance

Model 3 indicates the persistence of clients in the program; that is, the number of periods clients are assigned hours indicates that they were judged to be capable of living safely in their own homes with help. The likely effect of ethnicity or county size on program use was unclear at the start of my study, so using the Department of Social Services' categories of counties by caseload size helps examine counties as similar groups. Because medium (1,000-9,999 cases) and large (10,000+ cases) counties make up the most of the county types, those categories are dummy variables and are compared with the baseline, which is counties with fewer than 1,000 cases. Effect of diversity was not directly addressed in the literature, but as the population of California ages and becomes more diverse, differences in use by ethnicity may offer helpful information.

The spreadsheet I built lists clients by California county. It indicates gender, the age of each client in the program as of 2004, total hours assigned in the study period, hours authorized for each reporting period (a maximum of 283), and the number of reporting periods for clients (a maximum of 21). The details for each person were tracked from January 2004 through January 2014.

#### *Anticipated effects*

My expectations are a result of my review of pertinent literature in Chapter 2. Women tend to live alone and live longer, leading to expected greater need for the type of assistance offered by in-home care. Total hours authorized in the study period indicate an intensity of use, while number of times clients were allotted hours will indicate a persistence of need. The effect of county of residence was not something addressed in the literature. The studies reviewed do point out that lower lifetime income translates to

lower lifetime health care and a greater probability of disabilities later in life; California is becoming increasingly diverse, and nonwhites historically have had lower lifetime incomes. Consequently, the question of ethnicity bears further examination.

*An examination of the data*

Before regressing the data, I examined my spreadsheet and generated tables in the Stata statistical software to show how the program has been used by the initial cohort of 4,999. For example, Stata tallied the number of people in the study by race or ethnicity and by age in 2004. Results of this examination are discussed in Chapter 4.

*Further data analysis*

For the regressions, I analyzed the data using a Stata statistical program to run simple multivariate regressions with Ordinary Least Squares (OLS). Examining how county residence, gender, race and ethnicity, and age affect the total number hours authorized to each client, the hours authorized in a clients' final period in the program, and length of time in the program will help craft the portrait of In-Home Supportive Services users more specifically. The California Department of Finance predicts the state's 65+ population will exceed 11 million compared with fewer than 29 million workers to support them by 2050, so discussion of response to this demographic change is not a trivial one.

I examined the dataset for comparison among counties, as mentioned, and analyzed it via regression, as well. Regression analysis quantifies a cause-and-effect relationship among variables to determine the effect on one variable, a dependent variable, when an independent or explanatory variable changes (Studenmund, 2006).

Using the data from all of California, the independent variables for size of county caseload, gender, age, and race and ethnicity were regressed against three dependent variables: total hours assigned to clients in the study period, the number of hours authorized in a client's final reporting period, and persistence in the program. The effect of each independent variable on the time-in-program dependent variables was measured one at a time while the other independent variables were held constant. In other words, the effect of gender on the

time-in-program variables was assessed independently of the effects of county caseload, age, and ethnicity.

Regression shows relationships between variables in order to predict the changes of effects of one variable on

**Table 3.2: Test for Multicollinearity**

Variable	Variance Inflation Factor
County size by caseload, 1,000-9,999	5.32
County size by caseload, 10,000+	5.11
Female, yes	1.31
Age in 2004	1.23
Hispanic, yes	1.15
Black, yes	1.10
Asian, yes	1.04
Pacific Islander, yes	1.02
Alaska Native or American Indian, yes	1.01
Mean Variance Inflation Factor	2.03

another (Kellogg School of Management, n.d.). As mentioned, I analyzed data for this thesis using OLS, a linear regression technique that minimizes the effects of the estimation against the actual data (Studenmund, 2006, p.37). OLS generates an estimated regression equation for the data that minimizes the variations of one calculation from the next, in this thesis the variation of one client's use history from the next client's. I ran regression analyses of the three models and corrected for robustness to eliminate the likelihood of heteroskedasticity, a problem in which the variance from the regression

estimation gets larger with larger values (Studenmund, 2006, p. 93). Additionally, I tested for multicollinearity, in which one variable always changes when a different variable changes, by examining the Variance Inflation Factors. Table 3.2 (previous page) shows the results; a VIF less than 5 indicates that the effects of each element are independent. Because the county caseload sizes are only slightly larger than 5 and offer information for policy makers, no adjustments or further testing of the data are made.

Table 3.3 (next page) shows the relationships of the independent variables to each of the time-in-program variables in the three models used: total hours, hours assigned at exit and persistence in the program. The asterisks indicate statistical significance by showing the certainty of how well the data fits the estimated model. Note that five of the independent variables in Model 3 indicate the appropriateness of the model in the 99 percent likely range and one in the 95 percent range. The other two models each show only three independent variables that are so statistically significant at that level. In all models, gender and age are highly significant. County caseload size is an important determinant in total hours in Model 1 and persistence in program in Model 3, and the coefficients on the larger counties are larger, meaning that a larger county has a bigger effect. In the ethnic categories, blacks and Asians are significant in Model 2, but being black means more hours assigned at exit, while Asians are likely to be assigned fewer hours. Those relationships are reversed in Model 3, in which being black means fewer reporting periods and being Asian indicates a longer time in the program. Being Hispanic, an increasing portion of California's population, is significant in this study only as far as total hours in the program, not in either of the other two time-in-program

models. Categories with Pacific Islanders or Alaska Native-American Indians showed no statistical significance in this study.

I also ran regressions to test the best-fit functional form. The log-lin and log-log forms fit best when the three models' significant  $t$ -statistics were summed (see Appendix C). Ultimately, though, all of the forms were consistent throughout all models in that the coefficients of the variables that were high in one form and model were high in another,

**Table 3.3: Regression coefficients and their significance**

	Model 1	Model 2	Model 3
VARIABLE	Total assigned hours (converted)	Hours assigned at exit (converted)	Persistence in program (number of reporting periods during study)
County size, medium: 1,000-9,999 cases	0.2307** (0.1121)	0.1508 (0.1458)	1.8176*** (0.4933)
County size, large: 10,000+ cases	<b>0.5514***</b> (0.1085)	0.1014 (0.1411)	<b>3.7163***</b> (0.2137)
Female	<b>0.3682***</b> (0.0486)	0.2941*** (0.0631)	<b>1.2462***</b> (0.2137)
Age in 2004	<b>-0.0259***</b> (0.0028)	<b>0.0429***</b> (0.0038)	<b>-0.2979***</b> (0.0122)
Hispanic	0.1069** (0.056)	0.0045 (0.0728)	0.0987 (0.2464)
Black	0.1123 (0.0739)	0.2491** (0.0961)	-0.7265** (0.3253)
Asian	0.0074 (0.063)	<b>-0.5084***</b> (0.0818)	<b>2.1359***</b> (0.28)
Pacific Islander	-0.0493 (0.1)	-0.1085 (0.1301)	-0.2337 (0.4402)
Alaska Native or American Indian	0.1018 (0.2413)	0.5007 (0.314)	-0.8181 (1.0619)
Observations	4999	4999	4999
R-squared	0.044	0.0428	0.1483
Robust standard errors in parentheses, *** $p < 0.01$ , ** $p < 0.05$ , * $p < 0.1$			

and those that were lower and closer to threshold of significance remained in that range throughout, even when correcting for heteroskedasticity. The variables for female, and age in 2004 were consistently significant, and coefficients for counties with large caseloads also showed statistical significance, though less robustly.

Before discussing the regression analysis results, I will examine the data to see what more elemental details stand out and report those details in text and charts in this thesis. Tables can show the relationships between age, gender, county of residence and use of the program, particularly how long clients remain in the In-Home Supportive Services program. For purposes of the regressions, sum of hours and hours assigned at exit refer to ranges created to make statistical calculations in Stata more readily. A maximum total of 5,943 hours could have been authorized over the study period; instead I used 1=1-999, 2=1,000-1,999, 3=2,000-2,999, 4=3,000-3,999, 5=4,000-4,999, 6=5,000+ (to 5,943 hours). For hours at exit, for which the maximum was 283, I used 1=1-30, 2=30.1-60, 3=60.1-90, 4=90.1-120, 5 =120.1-150, 6=150.1-180, 7=180.1-210, 8=210.1-240, 9=240.1-270, 10=270.1-283. Department of Finance ethnicities were used to allow for discussion in Chapter 5 of population projections.

### *Summary and next steps*

In this chapter, I have described the source and contents of the data I used to analyze individual histories for an assessment of use by a population of clients in IHSS. Details I focused on were how gender, age, and race and ethnicity affected total hours of use, how many hours were authorized in a client's final reporting period, and persistence in the program. In the next chapter, I will describe the findings of my multivariate

analysis. In Chapter 5, I will offer conclusions about the data and what it indicates, discuss what is still unknown, and examine projected numbers of elderly in California by age and ethnicity.

## Chapter 4

### ANALYSIS OF THE DATA

A dataset from the California Department of Social Services provides demographic details on clients of In-Home Supportive Services, including county of residence, gender, age, race and ethnicity, length of time in the program, number of authorized hours over time, and persistence, or number of times each client was assigned hours for care. Using the methodology delineated in Chapter 3, my analysis offers details on the intensity and persistence of use over 10 years. The details help answer the question of this thesis: “When do people leave the In-Home Supportive Services Program?”

The dataset on IHSS clients has some limitations, as mentioned in the previous chapter: it does not address education, whether clients live alone, or types of disability that could affect program use. However, the models used show the strength and statistical significance of the variables used. Appendix E shows the strength and direction of the relationship between variables (Studenmund, 2006, p.52-53), which I will discuss.

#### *Key findings*

I will begin by discussing the broad strokes found in the aggregate data as well as a simple bivariate analysis. Zooming in from a panoramic view of trends in the data will yield details of the study population in a more rigorous, multivariate analysis, which I also discuss. First, an examination of the county-by-county data (Appendix A) shows the diversity of the 2004 cohort, which is shrinking (see Table 4.1). Table 4.2 categorizes the

number of total hours, in ranges of approximately 1,000 hours, authorized for numbers of individuals in the dataset. Totals reflect users in each hours category; most users had fewer than 2,000 total authorized hours in 10 years.

As Table 4.1 shows, the study cohort from the original pool of clients in 2004 shrunk with every reporting period, demonstrating the churn discussed in Chapter 2; that is, clients leaving and returning to the program. Those leaving also were replaced by others, as the total number of IHSS clients in California increased until the Great

Recession (California Department of Social Services, 2007). Not every client was in every reporting period, although 1,447 of the original 2004 cohort was in the program as of January 2014. The mean, year-to-year change in this cohort was -5.97 percent, so about 6 percent of the original 4,999 permanently left each year.

Table 4.3 shows program use by the number of reporting periods clients from the initial 2004 cohort had, by gender. Of note is that nearly a quarter of the clients were in the program continuously during the 10

**Table 4.1: Cohort of IHSS clients**

Reporting period	Clients in Data*	% change
Jan. 2004	4,999	
July 2004	4,743	-5.1
Jan. 2005	4,488	-5.4
July 2005	4,141	-7.7
Jan. 2006	3,840	-7.3
July 2006	3,565	-7.1
Jan. 2007	3,367	-5.5
July 2007	3,135	-6.9
Jan. 2008	2,938	-6.3
July 2008	2,761	-6.0
Jan. 2009	2,624	-5.0
July 2009	2,464	-6.1
Jan. 2010	2,320	-5.8
July 2010	2,187	-5.7
Jan. 2011	2,047	-6.4
July 2011	1,913	-6.5
Jan. 2012	1,901	-0.6
July 2012	1,766	-7.1
Jan. 2013	1,580	-10.5
July 2013	1,575	-0.3
Jan. 2014	1,447	-8.1

\*Clients churn in and out

**Table 4.2: Total hours authorized for IHSS clients**

Sum of hours							
	1	2	3	4	5	6	Total
Male	774	420	100	18	5	2	1,319
Female	1,847	1,261	434	106	23	9	3,680
Total	2,621	1,681	534	124	28	11	4,999

Key: 1=1-999, 2=1,000-1,999, 3=2,000-2,999, 4=3,000-3,999, 5=4,000-4,999, 6=5,000+ (5,943 hours maximum in the study period)

years. Stata tabulated a frequency of the cohort's ages in 2004 (Appendix B), and the number of the youngest in the group, those 65 to 72 years old, could have formed the group that persisted in the dataset for 21 reporting periods or 10 years. From the opposite view, three-fourths of those in the cohort in 2004 left the program for one reason or another by 2014. Table 4.4 shows that nearly 50 percent of the cohort left IHSS with 60 to 120 authorized hours per month, far below the maximum of 283 hours and counter to my expectations of people leaving with maximum hours.

*Information drawn from the data*

The dataset mirrors the findings in the literature (discussed in Chapter 2) with respect to the overall demographic characteristics of the caseload. The main finding is that users of in-home care are predominantly women. Of

**Table 4.4: Clients' hours at exit**

Hours at exit (converted)	Number of clients	Percent of total
1 = 1-20 hrs/month	173	3.46
2 = 30.1-60	745	14.90
3 = 60.1-90	1,300	26.01
4 = 90.1-120	1,133	22.66
5 = 120.1-150	668	13.36
6 = 150.1-180	389	7.78
7 = 180.1-210	214	4.28
8 = 210.1-240	118	2.36
9 = 240.1-270	103	2.06
10 – 270.1-283	156	3.12
Total	4,999	100.00

**Table 4.3: Clients' persistence**

Reporting period	Male	Female	Total
1	70	162	232
2	72	163	235
3	107	226	333
4	76	200	276
5	75	191	266
6	55	147	202
7	67	177	244
8	40	165	205
9	51	149	200
10	42	104	146
11	55	121	176
12	34	124	158
13	42	107	149
14	33	106	139
15	32	109	141
16	26	87	113
17	37	97	134
18	31	91	122
19	38	73	111
20	47	178	225
21	289	903	1,192
Total	1,319	3,677	4,999

**Table 4.5: Summary statistics about the dataset**

4,999 observations	Average	Standard deviation	Minimum	Maximum
Total hours	1,272.5 hours	1.5375	1	8
Hours at exit	94.2 hours	1.9987	1	10
Reporting periods	11.9439	7.1618	1	21
County caseload, 1,000-9,999	0.243	0.4289	0	1
County caseload, 10,000+	0.7137	0.452	0	1
Female	0.7361	0.4407	0	1
Age in 2004	78.5197	7.7679	65	108
Hispanic	0.2292	0.4203	0	1
Black	0.106	0.3078	0	1
Asian	0.1836	0.3872	0	1
Pacific Islander	0.0524	0.2228	0	1
Alaska Native or American Indian	0.008	0.0891	0	1

the 4,999 clients in Tables 4.3 and 4.5, 3,677 of them (73.6 percent) are women. Table 4.5 also shows that the average age in 2004 was 78.5 and that clients remained in the program an average of just fewer than 12 reporting periods or about six years. Overall, clients left the program with an average of 94.2 hours and had used a total average of fewer than 1,300 hours.

Women also were the larger parts of each race and ethnicity category shown in Table 4.6, using the categories derived from the California

**Table 4.6: Ethnicity, race of the study population**

Ethnicity, race	Male	Female	Total
White, non-Hispanic	576	1,527	2,103
Hispanic	273	873	1,146
Black, non-Hispanic	135	395	530
Asian*	259	659	918
Pacific Islander**	69	193	262
Native Alaskan or American Indian	7	33	40
Total	1,319	3,680	4,999
*Chinese, Korean, Laotian, Vietnamese, Japanese, Cambodian, Asian Indian			
**Hawaiian, Samoan, Guamian, Filipino			

Department of Finance and the U.S. Census.

Table 4.7 shows use of the in-home care program during the study period by ethnicity and race. Use of the Department of Finance ethnicity and race categories for my study population allows for an examination of like populations for the projections in Chapter 5 and for categorizing IHSS clients' ethnicities and race from the data set. Note that while the data I analyzed pertains to a particular group of clients, the eldest in 2004 were Pacific Islanders, 81.2 years old on average, while the youngest were Black, with an average age of 77.3. Asians persisted in the program the highest average number of reporting periods, 13.8, almost 7 years, compared with those in the Alaska Native or American Indian category, in the program an average of about 4.5 years. Conversely, those in the Alaska Native or American Indian category had the highest number of authorized hours, 113.4, in their last reporting periods and the largest percentage of

**Table 4.7: The Ethnicity Factor**

	White	Hispanic	Black	Asian	Pacific Islander	Alaska Native or American Indian
Avg. age in 2004	77.8	78.6	77.3	80	<b>81.2</b>	79.6
Avg. reporting periods	11.5	11.8	11.4	<b>13.8</b>	10.9	9.1
Avg. hrs at exit	94.9	97.9	102.1	82.3	96.4	<b>113.4</b>
Percent female	72.6	76.18	74.53	71.79	73.66	<b>82.5</b>
Avg. sum of hours	1,745	1,875	<b>1,919</b>	1,768	1,759	1,700

Source: Stata13

women at 82.5 percent, indicating that the population tended to have greater assessed needs, compared with 82.3 hours at exit for those in the Asian category, with a study low of 71.79 percent women. Black clients had the highest overall total of authorized hours at 1,919, while the Alaska Native or American Indian category tallied a low average of 1,700 total hours. I generated the values from what was reported for each ethnic group, rather than compare one group to another, as I did in the regression portion of the analysis.

*What the regressions reveal*

Examining aggregate data for bivariate details, such as which ethnic category had a higher average age or how long women persisted in IHSS as clients, is instructive for comparative purposes. However, such an examination offers information that is tied to a specific cohort of clients. In order to conduct a more rigorous analysis, a multivariate analysis of the data set is necessary to assess the marginal effects that age, race and gender have on intensity and persistence of use. Such details will help policy makers have a better sense of how a change in overall age or mix of ethnicities could affect need for such services.

I tested three models using these dependent variables: total hours used, how many hours clients were assigned in their final reporting periods, and persistence of use. The dependent variables were measured by holding county size by caseload, gender, age in 2004, and ethnicity constant against each of the other variables to determine how each affected the time-in-program variables. Four of the nine demographic variables showed slightly more significant effects in models using persistence in the program as the

dependent variable in all functional forms tested (see Appendix C). No matter the functional form used, the demographic variables that were consistently significant were being female, which had a positive effect on the time-in-program variables, and age in 2004, which had a negative effect on time in program. The R-squared also was the most robust in Model 3; however, if an R-squared of 1 indicates that all the variances are explained, my resulting R-Squared of 0.15 means that most of the variances are unexplained.

The dependent variables in Models 1 and 2 each were significantly affected by three demographic variables. More specifically, being from a county with a large caseload and being female positively affected total hours, while age negatively affected total hours in Model 1. In Model 2, being female and being older positively affected hours assigned at exit, while hours assigned at exit were negatively affected when race or ethnicity was Asian.

A portrait of an In-Home Supportive Services client begins to emerge from these regressions and from the earlier examination of the data. Most consistently, the regressions uncover the same skew toward females as a simpler examination of the data showed, and parallels what earlier studies have found about how low lifetime earnings among women makes them eligible for social programs, no matter their ethnicity. As expected, program use decreases with age, although of the 31 centenarians in the program in 2004, a 102-year-old was in the program for 8.5 more years and 11 others 100 or older were in the program 2 to 4.5 more years. Projections call for centenarians to make up a

larger portion of the population of California, so examining the needs of this group will become more important.

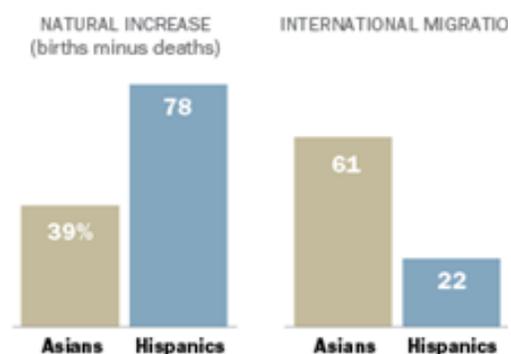
Studenmund (2006, p. 41) says multivariate regression coefficients indicate “the change in the dependent variable associated with a one-unit increase in the independent variable in question *holding constant the other independent variables in the equation* (italics his).” My results of a linear regression using OLS show that when county caseload size, age, and ethnicity are held constant, being female meant an additional 1.24 reporting periods. While that magnitude may seem small, consider that nearly three-quarters of IHSS clients are women and a slight gender edge in program tenure becomes a much larger consideration in allocating resources. In the same regression, each additional year of age in 2004 meant 0.3 reporting periods fewer overall, while residency in a county with a large caseload added 3.71 reporting periods, or almost two years, to a client’s use of the program. As far as ethnicity, the same regression found that Asian ethnicity affected persistence in the program by a factor of 2.1, just over a year, while being Hispanic affected reporting periods by a factor of 0.1. The other three ethnic categories each had a negative effect on overall program persistence: the factor for those in the Black category was -0.73, -0.23 for those in the Pacific Islander category, and -0.82 for those in the Native Alaskan or American Indian category.

Growth in California's 65+ population is projected to include a more diverse population. In my regression of Model 2 using hours at exit as a dependent variable, the Asian category was consistently statistically significant, but the negative numbers meant that those in this racial or ethnic category would have fewer assigned hours in their final reporting periods. Conversely, in Model 3, the statistical significance for the Asian category was a positive one, in which Asians persisted in the program longer, on average. A report by Pew Research Center examines the rapid growth in California among Asians and Hispanics (Brown, A., 2014): it attributes growth and projected growth among Asians to immigration and parallel growth among Hispanics to birth rates (Figure 4.1). Indeed, California absorbed much of the population of Vietnamese, Laotian and Cambodian immigrants around the end of the Vietnam War in 1972. Many of those who came as new or middle-age family leaders are now in retirement. Table 4.8 (next page) shows the 2004 cohort by number of reporting periods.

**Figure 4.1: Asian and Hispanic growth**

**Hispanic Population Growth Fueled Mainly by U.S. Births; Asians by Migration**

*Percent of total population change from 2012 to 2013 accounted for by ...*



Note: Asians include mixed-race populations, regardless of Hispanic origin.

Source: U.S. Census Bureau 2013 population estimates

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*What are the expected effects of diversity?*

In Chapter 5, I show the Department of Finance’s projection of California elderly by gender and diversity to 2060, and compare percentages of projected population by gender with national projections by the U.S. Census to demonstrate that the increase in elderly is an issue to be addressed sooner than 2060. Chapter 5 summarizes my conclusions, questions that remain, and offers some suggested avenues.

**Table 4.8: Use of In-home Care by Ethnicity, Race**

Reporting period: (listed until ...)	White	Hispanic	Black	Asian	Pacific Islander	Native American or Alaskan	Total
Jan. 2004	94	68	17	36	13	4	232
July 2004	109	55	29	28	12	2	235
Jan. 2005	157	66	47	40	19	4	333
July 2005	137	57	28	38	16	0	276
Jan. 2006	127	54	35	33	15	2	266
July 2006	94	42	24	23	17	2	202
Jan. 2007	114	61	20	32	16	1	244
July 2007	76	63	19	34	8	5	205
Jan. 2008	86	45	20	32	11	6	200
July 2008	58	30	24	20	12	2	146
Jan. 2009	71	44	16	33	9	3	176
July 2009	61	33	19	29	10	1	158
Jan. 2010	66	34	17	25	7	0	149
July 2010	64	30	8	25	11	1	139
Jan. 2011	38	40	27	31	5	0	141
July 2011	29	31	13	34	6	0	113
Jan. 2012	47	36	12	28	11	0	134
July 2012	52	30	12	20	7	1	122
Jan. 2013	28	30	22	24	6	1	111
July 2013	91	60	24	40	10	0	225
Jan. 2014	499	237	97	313	41	5	1,192
Total	2,102	1,146	530	917	262	40	4,999

## Chapter 5

### CONCLUSION

Add to death and taxes a third certainty that California will need to consider new ways to doing things in the face of a burgeoning number of people 65 and older. The Baby Boomers are entering their retirement years, transitioning from workers whose efforts supported the aged and the young to those who need support. If no changes are made to current program and policies, there simply could be too many needs and not enough resources. This thesis explores current persistence and intensity of use of one program to help low-income and disabled elderly age place, the In-Home Supportive Services. An analysis of when people leave the program will help identify what steps might be taken to better keep a large vulnerable population safe and allow people to live in the least restrictive setting.

#### *What the data reveal*

My analysis of data from the Department of Social Services led me to a number of conclusions. Some of these mirror what was already known about the population of 65+ people who receive in-home care, but some of them are unique to the present study.

1. IHSS clients are primarily low-income women

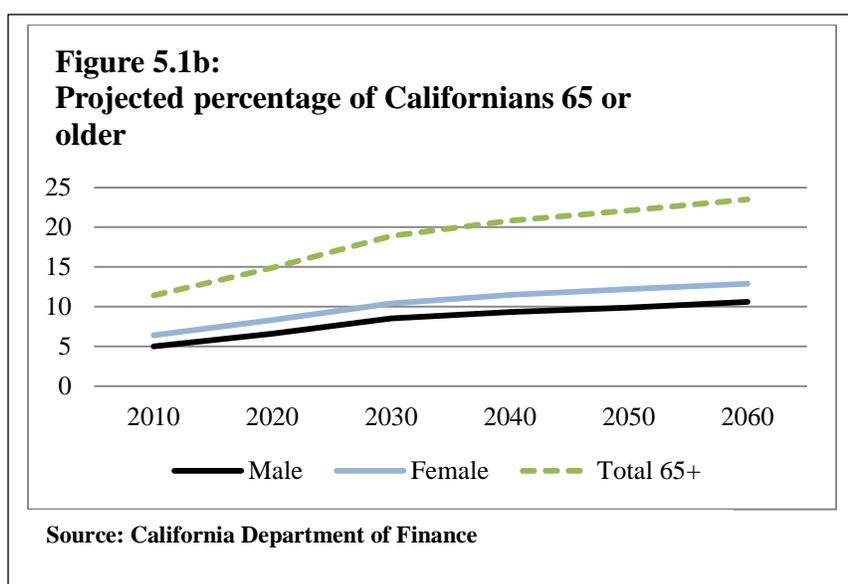
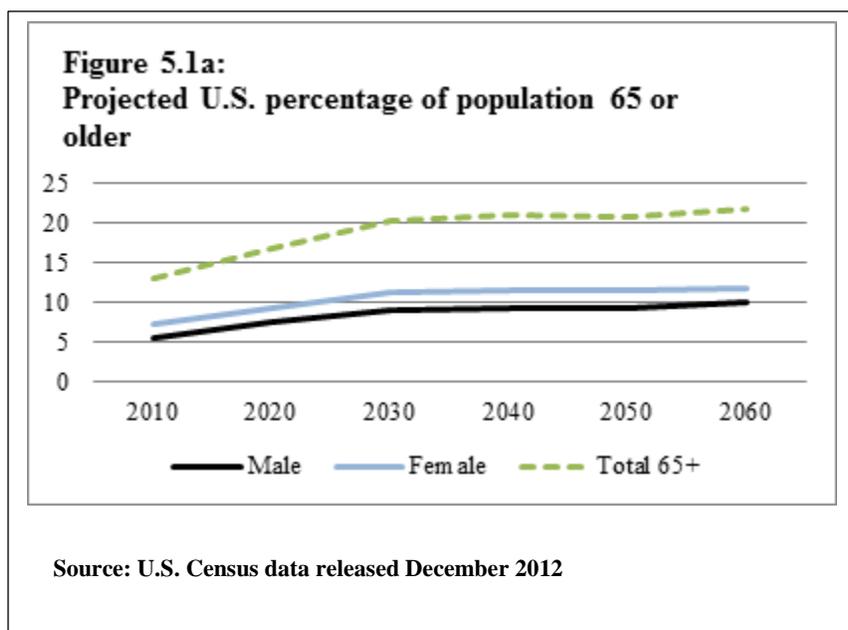
I found that IHSS recipients are predominantly women, and by virtue of inclusion in IHSS they are low-income and require assistance in order to live safely in their own homes. In California, the population is increasingly diverse, which contributes to a lower

lifetime attainment of assets and a subsequent increase in chronic health conditions that come with lower lifetime income. The population of California is

expected to become more diverse, as is its cohort of people older than 65, which likely will increase the number of elderly requiring assistance in their retirement years.

Current data, then, will help set a baseline for assessing expected changes in order to determine responses to those changes.

It is unknown how many people will be available to take care of those who need support. The Department of Finance's detailed population projections include the



numbers of people 65 and older each county through 2060, followed by an ethnic breakdown in select counties (See Appendix D). Figures 5.1a and 5.1b (previous page) show current projections for the percentage of people 65 and older through 2060. Of note is that the projections for California are slightly higher than those for the nation at large, particularly for women. Population projections are educated guesses about immigration, birth and death rates, as well as demographics. There could be more people born in the next 10 years than anticipated, changing the number of potential workers in 2040 and beyond, for example. Because population projections are collections of assumptions, it is important to examine how programs such as California's In-Home Supportive Services have been needed and applied.

2. A quarter were still in the program after 10 years

My most striking finding about the In-Home Supportive Services program is that a quarter of the original clients in the study were still in the program after 10 years. IHSS clients are elderly and have a number of disabilities, and my regression analysis found that the average time in the program during the study period was less than six years, which fit my expectations. The surprise was the number of clients who were in every single reporting period. Given that my regression calculated an average age in 2004 of about 78 (Table 4.5, page 42), I concluded that the persistent group likely included the clients in their 60s and early 70s in 2004. Appendix B lists the number of people in 2004 from 65 through 108, the bulk of whom were younger than 80.

3. Those in the program longer, on average, were women

Women in every reporting period outnumbered men throughout the study period, and almost always by more than 2-1, and occasionally by 4-1. They also were assigned more total hours, and made up a larger portion of each race or ethnicity. It is perhaps even more striking is that when I held all other demographic characteristics constant, being female was correlated with more assigned hours as well as longer time in the program. My finding strengthens studies cited in Chapter 2 that women who need in-home care likely live alone and likely are low-income, therefore would need help to stay safely in their homes. I will discuss lifetime income more in subsequent sections.

#### 4. There are some differences in program use across ethnic groups

Of the ethnicities, I found that those in the Asian category were more likely to use such services for a longer time, while those in the Alaska Native and American Indian category spent the least time in the program (Table 4.7, page 43). Asians and Hispanics make up the two fastest growing racial or ethnic categories in California. Members of those two racial or ethnic categories were correlated with a longer time in the program and more overall assigned hours, although being Asian had a negative effect on the number of hours assigned at exit. Being Native Alaskan or American Indian and Black meant less overall time in the program; however, those two populations had a positive effect on the number of hours assigned at exit, meaning that although the two groups spent less overall time in IHSS, such clients likely were sicker.

#### *Some unanswered questions*

One thing we cannot know is the effect of Gen Y or the Millennial Generation on

policy. The cohort born from 1981 to 2000 is entering the workforce just as the Boomers are beginning to retire. What is unknown is what values they will demonstrate when determining how to allocate scarce resources. The ethics of this group are more situational than ideal, and the Millennials were found to be less loyal, and more collaborative, technically savvy, narcissistic, and possessing a sense of entitlement (VanMeter, Grisaffe, Chonko & Roberts, 2013). Conversely, Ng and Gossett (2013) found that the Canadian Millennials who expressed an interest in working in public service also rated high ethical standards, social responsibility and progressive working environment as ideal employer characteristics.

One historic trend that may affect the level of need for future retirees is the change in the number of women who now work. While women historically earn less than men for comparable work, and while women are more likely to leave the job market to care for a child or elderly relative, the number of women who never have had paying jobs



outside the home is likely to keep trending downward from current retiree population (Hartmann & English, 2009). In 1970, 41.2 million women did not work for pay while nearly 30 million had paying jobs. Conversely, and part of a decades-long trend (Figure 5.2, previous page), in 2009, 66.2 million women worked for pay while 49.6 million did not. While the number of unpaid women increased by 17 percent, those who earned a paycheck increased by nearly 55 percent (Bureau of Labor Statistics, n.d.).

In addition to changing their lifetime earnings, work may also affect women's longevity by exposing them to more of the mortality issues that have affected men (Oleksiewicz, 1984, personal communication). A lifetime of work may expose women to higher rates of harmful substances, or heart disease or other chronic conditions created by the stresses of lifestyle related to employment, adding to the potential that although women may not live as long as they had in the past, they may be sicker and require more care and be less able to give care to spouses or dependents in their later years. My bivariate examination of the data and subsequent regressions found that being female had a significant positive effect on each of the time-in-program variables: they had more total hours assigned, had more hours assigned in their final reporting periods, and persisted longer in the program. Three-quarters of my initial cohort was female, and females made up about 72 percent to 82.5 percent of each ethnic or racial group tracked. Over time, the high portion of female clients who are less healthy could have a profound effect on resources needed for their care.

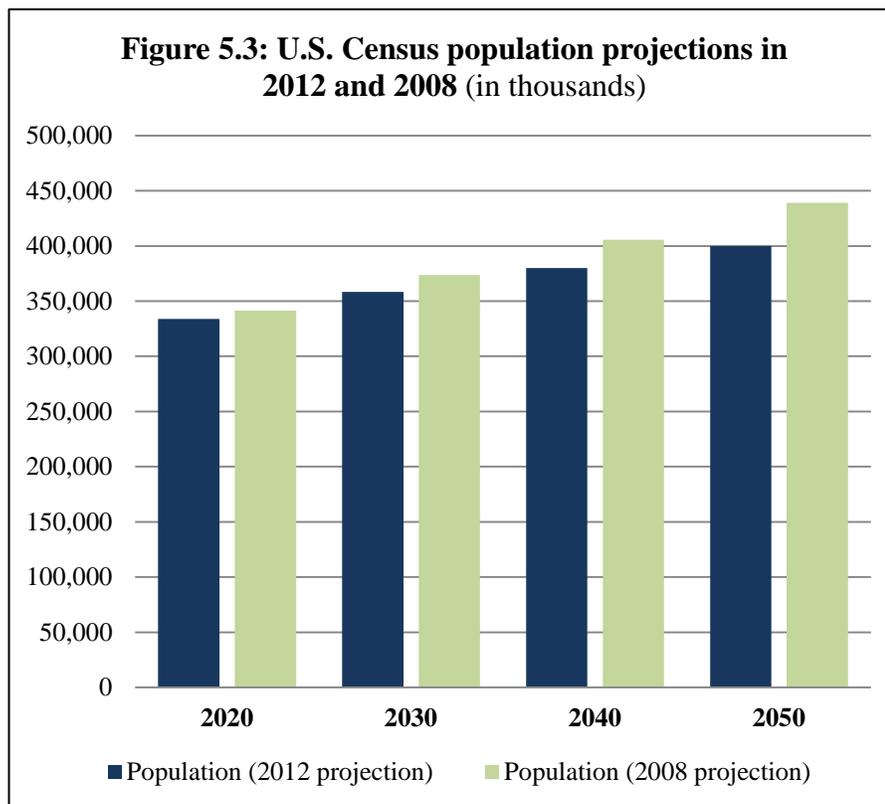
Knowing what kinds of disabilities are most prevalent among those who need caregivers may allow for changes in policy to help boomers as they age: perhaps by

promoting healthier habits that decrease the likelihood of disabilities and chronic disease. Current rates of lifestyle-related conditions, such as diabetes and obesity, are not set in stone and may be changed to the benefit of an aging population and those who will care for them. Factors, such as diabetes, high blood pressure, high cholesterol, smoking and alcohol consumption, raise risks of vascular dementia (Mayo Clinic, 1998-2004). The Alzheimer's Association (2014) said such factors also raise the risk of Alzheimer's, and that lifestyle changes may help prevent or ease risks. Other research may address current trends and optimal responses to easing health issues for the aging.

Also unknown is whether the economy will shift dramatically again: The Great Recession caused a reduction in the anticipated move of retiring Boomers to more rural areas, which has implications for available jobs and services in areas serving retirees (Mather & Jarosz, 2013). The Great Recession may also have changed birth rates and immigration: Figure 5.3 shows population projections in 2008 for the United States were higher than those released in 2012 based on 2010 Census counts. The blue shows the 2012 projections, while the lighter green bars to the right show the higher 2008 projections.

What of immigration? Canada plans to address an expected shortage of skilled working-age adults by changes to immigration laws (Ng & Gossett, 2013). Will the United States do the same? The U.S. Congress has been putting off discussion of immigration or immigration reform; perhaps some alarm over an aging populace may change policies regarding the number and type of workers who enter the United States.

The 2014 wave of juveniles streaming across the southern border from Central America could provide an unexpected opportunity for the United States to



Source: U.S. Census Bureau

address an expected shortage of workers who could help support a growing number of elderly in exchange for a safe and humane new homeland.

The need for the IHSS program may not solely be a function of low lifetime income: culture may play a role as well. Some ethnic groups may have an ethos that precludes usage of public assistance programs and that aging family members are cared for by younger relatives without the involvement of social service agencies. And some historic events, such as the fall of Saigon in 1972, may account for a wave of immigration of families that later include aged members who need services. Indeed, I found that being Asian in the study population meant a longer average time in the program than those in any other ethnic or racial category, so culture should be part of the discussion.

The burgeoning elderly population presents opportunities now for debate and crafting new responses. Two programs for elderly and disabled people are being tested in limited areas. The first, called PACE for Program of All-Inclusive Care for the Elderly, is a national program allowed to operate under the auspices of Medicare and Medicaid. It is available in 36 California ZIP codes (Sutter Health Sacramento Sierra Region, 2014; National PACE Association, 2002). The philosophy is to provide for 100 percent of a client's care needs through a single entry point. In contrast, IHSS covers limited tasks; for example, a client could be driven to a medical appointment under IHSS-approved tasks, but would get medical service through Medi-Cal or Medicare. PACE is an alternative to California's Coordinated Care Initiative (CCI), a pilot test in eight California counties. CCI also is designed to unify treatment for the elderly, particularly for "dual eligibles" who qualify for Medicare and for Medi-Cal (California Department of Health Care Services, 2014). Knowing how IHSS has been used provides helpful information for those who design new approaches to caring for an elderly population to allow people to live in the least restrictive setting possible.

#### *Conclusion and recommendations*

The data revealed a statistically "typical" IHSS client: a woman who is an average of 78 years old and spends about six years in the program, though not always consecutive years. Surprisingly, a quarter of the study group was among the clients for more than 10 years. Information about this population, particularly the increasing diversity of the group, may mean that policy will need to add cultural sensitivity to assessing and meeting the needs of elderly clients. PACE was born of such adjustments after populations in San

Francisco worked for more culturally sensitive care (National PACE Association, 2002). The significance of the ethnicity of Asians may indicate services more tailored to them.

There is little question that the aging of California will mean that a larger portion of the population is retired. Policy changes before 2060 may help make life easier for the aging Baby Boomers as well as for other segments of the population. Further research of the PACE and CCI programs will show which elements are successful in addressing the needs of the elderly, thereby potentially easing the burden on caregivers.

Pilot programs and other policy changes may offer guidelines for successfully helping the elderly and all other segments of the population. For example, improving public transportation and increasing infill may allow more people to get around to more places, no matter the age. It also may help by mitigating air pollution or encourage more people to walk or use bicycles. Lowering crime rates and making walking safer may also coax people out of their cars and onto well-maintained sidewalks. The largest numbers of IHSS clients live in more urban areas (about 95 percent in Table 4.5 in counties with larger caseloads), so addressing transportation and infill helps larger numbers of people more immediately, possibly by better connecting caregivers with clients.

Healthier lifestyles are another way to decrease risks of chronic conditions, such as diabetes, high blood pressure and obesity that may contribute to dementias.

Encouraging mobility and making healthy foods available can help keep the elderly in better shape for longer periods, perhaps increasing this population's sense of well-being, which also positively affects their perceived happiness and ultimately, their health.

Access to healthy foods helps all segments of the population.

Immigration changes are under consideration by Canada, which could ensure that there are enough caregivers to help the elderly. Finding caregivers is a laudable goal; but careful thought should be given to a change in policy after considering all of the attendant good and bad of increasing the population. If immigrant groups have historically had low education attainment and lower lifetime wealth, thereby needing services like IHSS in their later years, encouraging more immigration could cause complications in later years without accounting for new needs.

The population of people 100 and older is expected to be a larger portion of the overall population. What is unknown now is the magnitude of this growth; however, determining the specific needs of this population will help meet the needs of that future population.

Finally, addressing issues of income inequality could go a long way toward helping the low-income and predominantly female elderly make strides toward accumulating enough assets to care for themselves in their retirement. Many of the women in the initial cohort of retiring Baby Boomers never worked for pay, but that has changed in the decades since the 1960s. Getting a regular paycheck still may not be enough to make a difference if all of women's income is spent on basic needs for themselves and their families. Making it possible for women to earn enough to put something away for retirement is one policy solution that may not be easy, although the effects could reverberate as much as the wave of retiring Baby Boomers via improved economic effects.

This study examines when people leave the In-Home Supportive Services program. While more people may need services in order to age safely in their own homes, some interventions between now and then could make the change less onerous. Knowing who the clients of such services have been and how such services have used will help determine how best to apply scarce resources.

## Appendix A: By-County Statistics

County	Total	Male	Female	White	Hispanic	Black	Asian	Pac. Islan.	Native Am.
Alameda	176	51	125	49	12	57	51	7	0
Alpine	4	1	3	1	0	0	0	0	3
Amador	10	1	9	10	0	0	0	0	0
Butte	54	13	41	43	2	6	1	1	1
Calaveras	11	4	7	9	1	0	0	1	0
Colusa	11	5	6	5	6	0	0	0	0
Contra Costa	49	6	43	22	7	18	0	2	0
Del Norte	11	2	9	10	0	0	0	0	1
El Dorado	11	3	8	10	0	0	0	1	0
Fresno	279	57	222	77	136	64	1	1	0
Glenn	11	6	6	10	1	0	0	0	0
Humboldt	49	13	36	44	0	0	1	0	4
Imperial	49	11	38	3	42	4	0	0	0
Inyo	11	3	8	8	2	0	0	0	1
Kern	49	6	43	18	18	12	0	1	0
Kings	49	13	35	17	15	7	0	9	0
Lake	49	11	38	41	3	3	0	2	0
Lassen	11	3	8	10	0	0	0	0	1
Los Angeles	1,881	639	1,242	642	425	180	493	138	3
Madera	49	12	37	27	15	6	0	0	1
Marin	48	9	39	28	5	5	3	7	1
Mariposa	10	3	7	9	1	0	0	0	0
Mendocino	49	8	41	31	2	0	0	0	16
Merced	49	3	46	20	23	6	0	0	0
Modoc	10	2	8	10	0	0	0	0	0
Mono	4	0	4	3	1	0	0	0	0
Monterey	48	4	44	12	32	4	0	0	0
Napa	10	6	4	6	1	0	3	0	0
Nevada	10	2	8	10	0	0	0	0	0
Orange	176	23	153	52	43	5	70	6	0
Placer	48	2	46	47	0	0	0	0	1
Plumas	10	5	5	10	0	0	0	0	0
Riverside	176	35	141	80	71	17	1	7	0
Sacramento	176	52	124	102	15	21	31	7	0
San Benito	10	6	4	5	4	0	0	1	0
San Bernardino	176	41	135	87	48	26	7	7	1
San Diego	176	53	123	74	35	9	29	29	0
San Francisco	176	54	122	29	18	21	97	11	0

## Appendix A: By-County Statistics (cont.)

County	Total	Male	Female	White	Hispanic	Black	Asian	N. Am.	Pacific Islander
San Joaquin	48	7	41	19	21	8	0	0	0
San Luis Obispo	48	45	3	30	11	2	1	4	0
San Mateo	48	5	43	15	16	12	2	3	0
Santa Barbara	48	7	41	27	11	4	5	1	0
Santa Clara	176	19	157	43	19	4	101	9	0
Santa Cruz	48	10	38	33	14	0	0	0	1
Shasta	48	7	41	43	0	1	4	0	0
Sierra	5	2	3	5	0	0	0	0	0
Siskiyou	10	3	7	7	0	1	0	0	2
Solano	48	2	46	20	6	18	2	1	1
Sonoma	48	9	39	31	6	3	4	3	1
Stanislaus	48	5	43	36	8	1	3	0	0
Sutter	6	1	5	6	0	0	0	0	0
Tehama	10	2	8	9	0	0	0	0	1
Trinity	10	0	10	10	0	0	0	0	0
Tulare	48	8	40	23	20	3	2	0	0
Tuolumne	10	2	8	9	0	0	1	0	0
Ventura	48	9	39	20	23	1	2	2	0
Yolo	48	7	41	36	7	1	3	1	0
Yuba	10	1	9	10	0	0	0	0	0
Total	4,999	1,319	3,680	2,103	1,146	530	918	262	40

Appendix B: How many clients in the study were in each age in 2004

Age in 2004	Frequency of age in cohort	Percent of cohort	Age in 2004	Frequency of age in cohort	Percent of cohort
65	13	0.26	88	124	2.48
66	164	3.26	89	105	2.10
67	163	3.26	90	79	1.58
68	165	3.30	91	86	1.72
69	207	4.14	92	68	1.36
70	180	3.60	93	45	0.90
71	171	3.42	94	42	0.84
72	201	4.02	95	33	0.66
73	209	4.18	96	24	0.48
74	259	5.18	97	21	0.42
75	205	4.10	98	12	0.24
76	220	4.40	99	10	0.20
77	225	4.50	100	9	0.18
78	214	4.28	101	6	0.12
79	237	4.74	102	3	0.06
80	225	4.50	103	5	0.10
81	202	4.04	104	3	0.06
82	209	4.18	105	3	0.06
83	204	4.08	106	0	0.00
84	193	3.86	107	1	0.02
85	168	3.36	108	1	0.02
86	156	3.12	Total	4,999	100.00
87	129	2.58	Average age in group is 78.5 years old in 2004		

Appendix C: Variables used, their expected signs, and best fit models (Model 1)

Variable	Expected sign	Linear	Lin-log	Log-lin	Log-lin corrected	Log-log	Log-log corrected	Quadratic
Dependent								
<b>Sum of hours (total)</b>								
Independent								
County caseload, medium	+	0.2307** (0.1121)	0.2292** (0.1121)	0.0950** (0.0476)	0.0950** (0.0443)	0.0942** (0.0477)	0.0943** (0.0443)	1.3863* (0.7238)
County caseload, large	+	<b>0.5514***</b> (0.1085)	<b>0.5509***</b> (0.1086)	<b>0.268***</b> (0.0461)	<b>0.278***</b> (0.0430)	<b>0.2677***</b> (0.0462)	<b>0.2677***</b> (0.0430)	2.7914*** (0.7008)
Female (1=Female)	+	<b>0.3682***</b> (0.0486)	<b>0.3684***</b> (0.0486)	<b>0.1607***</b> (0.0206)	<b>0.1607***</b> (0.0199)	<b>0.1609***</b> (0.0206)	<b>0.1609***</b> (0.02)	<b>2.2430***</b> (0.3129)
Age in 2004	-	<b>-0.0296***</b> (0.0028)	<b>-2.3281***</b> (0.2212)	<b>-0.0143***</b> (0.0012)	<b>-0.0143***</b> (0.0011)	<b>-1.1296***</b> (0.0941)	<b>-1.129***</b> (0.0918)	<b>-0.0009***</b> (0.0001)
Hispanic	-	0.1096** (0.056)	0.1108** (0.0560)	0.0271 (0.0238)	0.0271 (0.0243)	0.0277 (0.0238)	0.0277 (0.0243)	0.761** (0.3609)
Black	-	0.1123 (0.0739)	0.1120 (0.0739)	0.0233 (0.0314)	0.0233 (0.0326)	0.0232 (0.0314)	0.0232 (0.0326)	1.08** (0.4763)
Asian	+	0.0074 (0.0629)	0.0106*** (0.0629)	0.0129 (0.0267)	0.013 (0.0266)	0.0145 (0.0267)	0.0145 (0.0266)	-0.3021 (0.405)
Pacific Islander	?	-0.0492 (0.1)	-0.047 (0.1001)	-0.0526 (0.0425)	-0.0526 (0.044)	-0.0514 (0.0426)	-0.0515 (0.044)	0.0991 (0.6455)
Native Alaskan or American Indian	?	0.1018 (0.2413)	0.097 (0.2413)	0.0455 (0.1026)	0.0454 (0.1096)	0.0431 (0.1026)	0.0432 (0.1092)	0.3458 (1.5553)
		<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>

**Bold** = significant *t*-statistic

\*\* = significant at the 95 percent confidence level

\*\*\* = significant at the 99 percent confidence level

 = best fit, and best fit corrected for heteroskedasticity

Appendix C: Variables used, their expected signs, and best fit models (Model 2)

Variable	Expected sign	Linear	Lin-log	Log-lin	Log-lin (corrected)	Log-log	Log-log corrected	Quadratic
Dependent								
<b>Hours at exit</b>								
Independent								
County caseload, medium	+	0.1508 (0.1458)	0.1532 (0.1458)	0.059* (0.0356)	0.0591** (0.0452)	0.0596* (0.0356)	0.0596 (0.0452)	0.9460 (1.5756)
County caseload, large	+	0.1014 (0.1411)	0.1018 (0.1412)	0.1027** (0.0344)	0.1027** (0.0435)	0.1028** (0.0344)	0.1028** (0.0434)	-1.4387 (1.5253)
Female (1=Female)	+	0.2941*** (0.0632)	0.294*** (0.0632)	<b>0.0804***</b> (0.0154)	<b>0.0804***</b> (0.0157)	<b>0.0803***</b> (0.0154)	<b>0.0803***</b> (0.0156)	2.5736*** (0.6825)
Age in 2004	-	<b>0.0429***</b> (0.0036)	<b>3.3656***</b> (0.2878)	<b>0.0099***</b> (0.0008)	<b>0.0099***</b> (0.0009)	<b>0.7813***</b> (0.0702)	<b>0.7813***</b> (0.0727)	<b>0.0027***</b> (0.0002)
Hispanic	-	0.0445 (0.0728)	0.0429 (0.0728)	0.0207 (0.0177)	0.0207 (0.0179)	0.0203 (0.0178)	0.0203 (0.0178)	0.072 (0.787)
Black	-	0.2491** (0.0961)	0.2495** (0.0961)	0.0616** (0.0234)	0.0617** (0.0228)	-0.0617** (0.0234)	0.0617** (0.0228)	2.6123* (1.0387)
Asian	+	<b>-0.5083***</b> (0.0818)	<b>-0.5123***</b> (0.0819)	<b>-0.1157***</b> (0.0199)	<b>-0.1157***</b> (0.0188)	<b>-0.1167***</b> (0.02)	<b>-0.1167***</b> (0.0188)	<b>-4.9253***</b> (0.8833)
Pacific Islander	?	-0.1085 (0.1301)	-0.1109 (0.1302)	-0.0330 (0.0317)	-0.0331 (0.0325)	-0.0337 (0.0318)	-0.0337 (0.0325)	-0.8634 (1.4055)
Native Alaskan or American Indian	?	0.5007 (0.3144)	0.5078 (0.3140)	0.1094 (0.0766)	0.1094 (0.0864)	0.1111 (0.0766)	0.1111 (0.0865)	5.4925 (3.3919)
		<b>2</b>	<b>2</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>2</b>

**Bold** = significant  $t$ -statistic

\*\* = significant at the 95 percent confidence level

\*\*\* = significant at the 99 percent confidence level

 = best fit, and best fit corrected for heteroskedasticity

Appendix C: Variables used, their expected signs, and best fit models (Model 3)

Variable	Expected sign	Linear	Lin-log	Log-lin	Log-lin (corrected)	Log-log	Log-log corrected	Quadratic
Dependent								
<b>Reporting per.</b>								
Independent								
County caseload, medium	+	1.8176*** (0.4933)	1.8018** (0.1131)	0.1552** (0.0603)	0.1522** (0.057)	0.1503** (0.0604)	0.1503** (0.0571)	48.9198*** (12.0113)
County caseload, large	+	<b>3.7163***</b> (0.4775)	<b>0.3712***</b> (0.4782)	<b>0.3486***</b> (0.0584)	<b>0.3486***</b> (0.0545)	<b>0.3484***</b> (0.0585)	<b>0.3484***</b> (0.0547)	<b>97.7344***</b> (11.628)
Female (1=Female)	+	<b>1.2462***</b> (0.2137)	<b>1.248***</b> (0.214)	<b>0.1487***</b> (0.0261)	<b>0.1487***</b> (0.0267)	<b>0.1487***</b> (0.0261)	<b>0.1487***</b> (0.0267)	<b>28.8902**</b> * (5.2032)
Age in 2004	-	<b>-0.2978***</b> (0.0122)	<b>-23.4044***</b> (0.9746)	<b>-0.0321***</b> (0.0015)	<b>-0.032***</b> (0.0015)	<b>-2.5009***</b> (0.1192)	<b>-2.5009***</b> (0.1229)	<b>-0.0457***</b> (0.0018)
Hispanic	-	0.0987 (0.2464)	0.1106 (0.2468)	0.0114 (0.0301)	0.0113 (0.031)	0.0124 (0.0302)	0.0124 (0.0311)	-0.9057 (6.0002)
Black	-	-0.7266** (0.3252)	-0.7296 (0.3256)	-0.0525 (0.0398)	-0.0525 (0.0388)	-0.0528 (0.0398)	-0.0528 (0.0388)	-21.9186* (7.9188)
Asian	+	<b>2.1358***</b> (0.2768)	<b>2.1665***</b> (0.2774)	<b>0.2295***</b> (0.0339)	<b>0.2295***</b> (0.0332)	<b>0.232***</b> (0.0339)	<b>0.232***</b> (0.0333)	<b>49.3339**</b> * (6.7342)
Pacific Islander	?	-0.2337 (0.4402)	-0.213 (0.4409)	0.0056 (0.05)	0.0056 (0.0528)	0.0068 (0.0539)	0.0068 (0.053)	-12.4036 (10.7149)
Native Alaskan or American Indian	?	-0.818 (1.0619)	-0.8666 (1.0633)	-0.0896 (0.1299)	-0.0896 (0.1497)	-0.095 (0.1301)	-0.095 (0.1497)	22.1573 (25.8576)
		<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>
Total fit scores		<b>9</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>10</b>	<b>8</b>

**Bold** = significant *t*-statistic

\*\* = significant at the 95 percent confidence level

\*\*\* = significant at the 99 percent confidence level

☐ = best fit, and best fit corrected for heteroskedasticity

## Appendix D: Population projection through 2060 by county (DoF)

	<b>Total 65 and older in 2010</b>	<b>Total 65 and older in 2020</b>	<b>Total 65 and older in 2030</b>	<b>Total 65 and older in 2040</b>	<b>Total 65 and older in 2050</b>	<b>Total 65 and older in 2060</b>
<b>California</b>	<b>4,271,542</b>	<b>6,052,713</b>	<b>8,369,570</b>	<b>9,955,312</b>	<b>11,134,191</b>	<b>12,377,768</b>
Alameda	168,698	243,688	329,612	383,681	414,491	426,293
Alpine	162	307	391	390	309	245
Amador	7,859	11,230	14,643	15,520	15,827	15,171
Butte	33,821	46,438	62,164	71,666	85,911	98,933
Calaveras	9,565	13,430	16,695	17,085	18,015	20,473
Colusa	2,479	3,704	5,058	5,926	6,759	7,985
Contra Costa	131,758	194,838	270,804	315,923	333,783	360,219
Del Norte	3,858	5,459	7,189	8,098	8,714	8,804
El Dorado	26,612	41,918	58,492	62,484	65,283	76,752
Fresno	93,989	135,315	188,561	225,325	264,549	310,810
Glenn	3,738	5,161	6,861	7,604	8,191	8,997
Humboldt	17,756	27,442	34,110	35,969	40,311	42,714
Imperial	18,326	30,264	42,448	52,768	62,501	75,321
Inyo	3,526	4,571	5,501	5,518	6,238	6,743
Kern	75,929	125,304	198,238	254,852	313,806	390,999
Kings	12,034	19,358	31,130	38,080	46,632	56,156
Lake	11,366	16,389	22,585	25,582	30,667	36,670
Lassen	3,524	5,584	8,066	9,276	9,899	9,704
Los Angeles	1,073,607	1,481,319	2,027,399	2,421,512	2,705,992	2,961,613
Madera	17,221	26,213	39,428	49,767	59,220	74,775
Marin	42,345	56,609	66,589	67,163	60,030	55,598
Mariposa	3,828	5,635	7,695	7,729	7,883	7,893
Mendocino	13,544	20,449	23,985	24,648	25,916	27,054
Merced	24,152	34,990	50,451	63,025	77,501	104,158
Modoc	1,882	2,597	3,100	3,242	3,315	3,216
Mono	1,382	2,287	3,177	3,301	3,562	3,769
Monterey	44,764	59,301	79,276	92,276	100,233	108,760
Napa	20,644	27,477	34,794	38,883	41,079	44,964
Nevada	19,255	27,640	33,733	34,603	38,456	43,149
Orange	353,172	486,607	670,070	780,861	812,673	854,596
Placer	53,668	74,971	105,097	127,418	139,471	155,584

## Appendix D: Population projection through 2060 by county (DoF) (cont.)

Plumas	4,120	5,988	7,019	6,721	6,443	6,711
Riverside	259,259	363,640	524,096	663,000	780,518	946,133
Sacramento	159,380	230,044	322,785	391,375	458,653	523,052
San Benito	5,437	8,317	13,062	15,886	16,778	17,672
San Bernardino	182,667	290,306	452,309	580,269	662,697	769,119
San Diego	353,294	492,019	674,165	806,899	925,604	1,020,242
San Francisco	109,517	140,156	164,150	177,468	186,639	177,963
San Joaquin	71,609	107,221	158,058	201,480	239,068	296,018
San Luis Obispo	41,105	58,414	76,406	79,268	83,421	88,869
San Mateo	96,449	128,038	172,760	200,672	215,610	211,891
Santa Barbara	54,434	68,865	87,202	94,577	104,394	114,672
Santa Clara	198,299	272,782	384,696	471,836	514,769	510,366
Santa Cruz	29,387	46,618	60,516	63,308	66,428	70,172
Shasta	30,059	44,248	59,046	66,373	76,506	87,509
Sierra	672	972	1,227	1,300	1,169	1,095
Siskiyou	8,769	12,293	14,678	14,887	15,682	17,113
Solano	47,239	74,558	105,220	120,756	133,125	151,070
Sonoma	67,763	99,448	126,762	133,581	136,401	143,401
Stanislaus	55,222	80,693	114,535	137,891	161,224	195,122
Sutter	11,993	16,734	23,668	31,040	40,691	53,516
Tehama	10,102	13,860	19,094	22,020	24,917	30,100
Trinity	2,740	4,048	4,945	5,099	5,956	6,797
Tulare	42,023	61,221	85,550	105,013	126,901	157,984
Tuolumne	11,283	15,103	18,011	18,241	17,951	18,666
Ventura	97,079	138,192	190,063	217,304	226,774	244,730
Yolo	19,918	30,825	43,898	54,586	66,433	78,675
Yuba	7,261	11,618	18,307	24,287	32,223	40,992

Source: California Department of Finance

## Appendix D (continued): Alameda County 2010-2060 by race

<b>Year</b>	<b>Total (All race groups)</b>	<b>White, not Hispanic or Latino</b>	<b>Black, not Hispanic or Latino</b>	<b>American Indian, not Hispanic or Latino</b>	<b>Asian, not Hispanic or Latino</b>	<b>Native Hawaiian and other Pacific Islander, not Hispanic or Latino</b>	<b>Hispanic or Latino</b>	<b>Multi-Race, not Hispanic or Latino</b>
2010	1,513,236	514,086	186,737	4,098	395,898	12,337	343,141	56,939
2020	1,608,204	481,049	187,576	4,203	447,590	14,049	402,771	70,967
2030	1,657,567	462,329	185,788	4,067	477,769	14,755	425,901	86,958
2040	1,678,565	428,479	180,230	3,915	481,391	15,106	467,048	102,396
2050	1,684,761	392,556	173,519	3,686	470,586	15,280	513,882	115,252
2060	1,675,011	360,262	167,278	3,355	472,495	15,062	529,386	127,174
% change 2010-2060	11	-30	-10	-18	19	22	80	119
<b>Alpine County 2010-2060 by race</b>								
2010	1,163	869	0	204	2	0	71	17
2020	1,172	833	0	222	0	0	99	18
2030	1,167	776	0	241	0	0	132	17
2040	1,172	720	0	253	0	0	182	17
2050	1,146	654	0	255	0	0	223	14
2060	1,147	624	0	254	2	0	257	11
% change 2010-2060	-1	-28	0	24	0	0	261	-37
Indicates percent change greater than percent change for Total (All race groups)								

Los Angeles County 2010-2060 by race								
2010	9,824,906	2,746,305	821,829	19,527	1,336,086	23,152	4,694,972	183,035
2020	10,441,441	2,537,542	777,840	20,677	1,482,966	26,325	5,361,579	234,512
2030	10,950,335	2,417,921	762,208	21,031	1,590,167	27,194	5,856,169	275,645
2040	11,243,022	2,273,602	737,743	20,415	1,646,963	27,167	6,226,973	310,158
2050	11,434,565	2,150,895	710,257	19,306	1,681,513	27,031	6,508,771	336,793
2060	11,562,720	2,072,836	682,815	17,817	1,693,978	26,878	6,710,646	357,750
% change 2010-2060	18	-25	-17	-9	27	16	43	95
Sacramento County 2010-2060 by race								
2010	1,420,434	691,338	140,694	7,973	200,201	13,795	307,513	58,920
2020	1,543,522	704,058	154,780	8,350	225,149	16,196	356,302	78,688
2030	1,708,114	728,372	165,453	8,593	264,664	19,819	419,617	101,595
2040	1,913,756	786,642	171,902	8,928	301,719	26,722	490,349	127,493
2050	2,063,132	821,771	171,921	8,878	330,636	32,181	546,612	151,134
2060	2,191,508	855,742	168,111	8,555	354,343	36,107	594,807	173,843
% change 2010-2060	54	24	19	7	77	162	93	195
California								
2010	37,309,382	15,024,945	2,188,296	163,040	4,827,438	131,415	14,057,596	916,651
2020	40,643,643	14,877,111	2,258,934	175,465	5,432,231	151,810	16,573,840	1,174,252
2030	44,279,354	15,107,321	2,341,428	182,307	6,029,513	166,512	19,020,889	1,431,384
2040	47,690,186	15,328,584	2,386,806	186,492	6,493,037	186,375	21,446,262	1,662,630
2050	50,365,074	15,460,624	2,350,153	186,818	6,809,555	201,554	23,512,393	1,843,977
2060	52,693,583	15,657,920	2,267,181	185,254	7,075,984	211,142	25,288,835	2,007,267
% change, 2010-2060	41	4	4	14	19	22	54	119

Appendix E: Correlations (strength and direction) between variables

Model 1	Total hours (converted)	County by caseload, medium	County by caseload, large	Female	Age in 2004	Hispanic	Black	Asian	Pacific Islander	Alaska Native, American Indian
Total hours (converted)	1.000									
County by caseload, medium	-0.0825*	1.0000								
County by caseload, large	0.1081*	-0.8948*	1.0000							
Female	0.0925*	0.0936*	-0.0828*	1.0000						
Age in 2004	-0.1505*	0.0741*	-0.0693*	0.0625*	1.0000					
Hispanic	0.0281*	0.0316*		0.0318*		1.0000				
Black	0.0329*		0.0370*		-0.0542*	-0.1878*	1.0000			
Asian		-0.2290*	0.2581*		0.0880*	-0.2587*	-0.1633*	1.0000		
Pacific Islander		-0.0558*	0.0695		0.0827*	-0.1283*	-0.0810*	-0.1115*	1.0000	
Alaska Native, American Indian		0.0904*	-0.1219*			-0.0490*	-0.0309*	-0.0426*		1.0000

Appendix E: Correlations (strength and direction) between variables (continued)

Model 2	Hours at exit (converted)	County by caseload, medium	County by caseload, large	Female	Age in 2004	Hispanic	Black	Asian	Pacific Islander	Alaska Native, American Indian
Hours at exit (converted)	1.000									
County by caseload, medium	0.0556*	1.0000								
County by caseload, large	-0.0505*	-0.8948*	1.0000							
Female	0.0794*	0.0936*	-0.0828*	1.0000						
Age in 2004	0.1605*	0.0741*	-0.0693*	0.0625*	1.0000					
Hispanic	0.0326*	0.0316*		0.0318*		1.0000				
Black	0.0451*		0.0370*		-0.0542*	-0.1878*	1.0000			
Asian	-0.0949*	-0.2290	0.2581		0.0880*	-0.2587*	-0.1633*	1.0000		
Pacific Islander		-0.0558*	0.0695*		0.0827*	-0.1283*	-0.0309*	-0.1115*	1.0000	
Alaska Native, American Indian	0.0285*	0.0904*	-0.1219*			-0.0490*	-0.0309*	-0.0426*		1.0000

Appendix E: Correlations (strength and direction) between variables (continued)

Model 3	Persis- tence of use	County by caseload, medium	County by caseload, large	Fe male	Age in 2004	Hispanic	Black	Asian	Pacific Islander	Alaska Native, American Indian
Persis- tence of use	1.0000									
County by caseload, medium	-0.1444*	1.0000								
County by caseload, large	0.1826*	-0.8948*	1.0000							
Female	0.0448*	0.0936*	-0.0828*	1.0000						
Age in 2004	-0.3153*	0.0741	-0.0693*	0.0625*	1.0000					
Hispanic		0.0316*		0.0318*		1.0000				
Black	-0.0242		0.0370*		-0.0542*	-0.1878*	1.0000			
Asian	0.1260*	-0.2290*	0.2581*		0.0880*	-0.2587*	-0.1633*	1.0000		
Pacific Islander	-0.0346*	0.0558*	-0.0695*		0.0827*	-0.1283*	-0.0810*	-0.1115*	1.0000	
Alaska Native, American Indian	-0.0357*	0.0904*	-0.1219*			-0.0490*	-0.0309*	-0.0426*		1.0000
*Correlation is significant at the 0.05 level										

Appendix F: Chart of articles used for literature review

Author(s)	Publication	Year	Title	Synopsis	How does this article inform my thesis? (Is there a point people leave IHSS for homes?)
Colleen L. Campbell, Sean McCoy, Mary Ann Burg and Nannette Hoffman	Home Health Care Management Practice	2013, Vol. 26, No. 3	Enhancing Home Care Staff Safety Through Reducing Client Aggression and Violence in Noninstitutional Care Settings: A Systematic Review	Home health-care workers and social workers are highly likely to suffer abuse by clients	<b>Home health care carries RISKS as much for the caregivers</b> as well as the clients, so a risk assessment should be developed that keep caregivers safe from physical or verbal abuse, assures that clients get the best care the caregiver can offer
Diane M. Doran, John P. Hirdes, Regis Blais, G. Ross Baker, Jeff W. Poss, Xiaoqiang Li, Donna Dill, Andrea Gruneir, George Heckman, Helene Lacroix, Lori Mitchell, Maeve O'Beirne, Nancy White, Lisa Droppo, Andrea D. Foebel, Gan Qian, Sang-Myong Nahm, Odilia Yim, Corrine McIsaac and Micaela Jantzi	BMC Health Services Research	2013	Adverse events among Ontario home care clients associated with emergency room visit or hospitalization: a retrospective cohort study	About 13 percent of the people getting home care in Ontario reported at least one adverse event per year, which meant a stay in the hospital or led to their death. Events included falls, sudden illnesses or accidental drug interactions	This study of data from a number of hospital databases <b>quantified</b> in a generalizable way the one element of <b>risk to elderly clients</b> of home-care services and illustrates the concept of churn, but also goes to answering the question about when people leave In-Home Supportive Services or similar programs. Events such as falls significantly increased the odds of a person requiring long-term care in an institution.
Diana Scully, Eunhee (Grace) Cho, John Michael Hall, Kelsey Walter, Jenna Walls, Wendy Fox-Grage, Kathleen Ujvari	AARP Public Policy Institute	July, 2013	At the Crossroads: Providing Long-Term Services and Supports at a Time of High Demand and Fiscal Constraint	Tight fiscal budgets and increasing demand for long-term supportive services is creating an unmet demand for in-home care	Despite a lag in states' recoveries from the recession, changes to Medicaid matching funds and the Affordable Care Act have helped state <b>expand programs</b> . But with more clients comes <b>more reports of abuse</b> to adult protective services.

Appendix F: Chart of articles used for literature review (cont.)

Author(s)	Publication	Year	Title	Synopsis	How does this article inform my thesis? (Is there a point people leave IHSS for homes?)
David R. Buys, Casey Borch, Patricia Drentea, Mark E. LaGory, Patricia Sawyer, Richard M. Allman, Richard Kennedy, Julie L. Locher	The Gerontologist	2012, Vol. 53, No. 4, pp. 641-653	Physical Impairment is Associated with Nursing Home Admission for Older Adults in Disadvantaged But Not Other Neighborhoods: Results From a UAB Study of Aging	Regressed categories to pair Lawton's environmental press theory with a neighborhood disadvantage scale to see if neighborhood quality can cause residents to move into nursing homes	<b>Where people live</b> and their perceptions of safety, access to transportation or care they need prompts them to weigh moving into nursing homes rather than age in place. It is an issue of support to compensate for their declines. Might it also be that caregivers do not want to go into bad neighborhoods to care for these aging-in-place adults?
Sahar Banijamali, Amy Hagopian, and Dan Jacoby	SEIU Healthcare 775NW	Feb. 2012	Why They Leave: Turnover Among Washington's Home Care Workers	Low pay, tough work contribute to caregivers leaving the career. It costs money to replace them in dollars and lost experience	Literature review, data from two surveys and interviews <b>quantifies caregiver turnover in Washington state</b> and discusses the effects reported in other states as a widespread crisis as trends mean fewer caregivers for clients.
Lonnie Hannon III, Patricia Sawyer and Richard M. Allman	Journal of Aging and Health	2012, Vol. 24, No. 30, pp. 384-406	The Influence of Community and the Built Environment on Physical Activity	Communities people live in, particularly minorities, account for differences in mortality, as people do not spend time outside on health-enhancing pursuits	Used data from a University of Alabama study with census data and interviews. <b>Neighborhood quality</b> determined time spent outside on physical activity, and by extension, quality of <b>health and mortality</b> , an element of <b>risk</b> for aging in place.

Appendix F: Chart of articles used for literature review (cont.)

Author(s)	Publication	Year	Title	Synopsis	How does this article inform my thesis? (Is there a point people leave IHSS for homes?)
Geoffrey J. Hoffman and Steven P. Wallace	UCLA Center for Health Policy Research	April 2012	Hidden in Plain Sight: California's Paid Medi-Cal Caregivers are Vulnerable	Paid caregivers in California live in poverty and have little access to health care	<b>Risk to caregivers</b> comes from <b>very low pay, low access to health care</b> , and financial insecurity.
Legislative Analyst's Office	The 2012-13 Budget	Feb. 17, 2012	Integrating Care for Seniors and Persons With Disabilities	The governor proposes taking a four-county test of managed Medi-Cal care to 10 or all counties; it's supposed to be only four and his estimated savings are too optimistic	<b>Care for dual eligibles is fragmented</b> and there is a <b>disincentive to economize</b> . The governor proposes that managed care under the Coordinated Care Initiative is the answer, but the LAO calls plan are too optimistic. Dual eligibles (Medicare and Medi-Cal) make up 85 percent of IHSS recipients. Counties pay more (18% of tab) if fewer people enter nursing homes.
Stacey Schepens, Ananda Sen, Jane A. Painter and Susan L. Murphy	The American Journal of Occupational Therapy	March/April 2012	Relationship Between Fall-Related Efficacy and Activity Engagement in Community-Dwelling Old Adults: A Meta-Analytic Review	Falls and fear of falling encourage elderly people to restrict their activity as falls could mean a move to a nursing home	Meta-analysis of data on <b>falls and fear of falling</b> found that even the fears were a <b>risk</b> to people living in the community. The fears and curtailing of activities were correlated, but causality could not be established.
Bjorn Slaug, Oliver Schilling, Susanne Iwarsson and Gunilla Carlsson	Journal of Aging and Health	2011	Defining Profiles of Functional Limitations in Groups of Older Persons: How and Why?	Looked for profiles in health conditions to make predictions about functional limitations.	The authors performed a frequency analysis on data to identify likely combinations of needs that <b>allowed people to need care and remain</b> in their homes.

Appendix F: Chart of articles used for literature review (cont.)

Author(s)	Publication	Year	Title	Synopsis	How does this article inform my thesis? (Is there a point people leave IHSS for homes?)
Marshelle Thobaben and Jeanne B. Kozlak	Home Health Care Management & Practice	Oct. 13, 2011, Vol. 23, No. 2, pp. 149-151	Suicidal Clients in the Home	Examined suicide rates among the elderly	Using data from the U.S. Department of Health and Human Services, <b>quantified suicide rates</b> for the elderly and listed <b>risk factors</b> .
Frank Oswald, Daniela Jopp, Christopher Rott, Hans-Werner Wahl	The Gerontologist	2010, Vol. 51, No. 2	Is Aging in Place a Resource for or Risk to Life Satisfaction?	People get attached to their neighborhoods, but as they age, their health limitations make them feel more vulnerable to their outer environments and a large living area changes from a belief that it is a resource to a risk	<b>Perception of home and neighborhood</b> work toward an aging person's feeling of being safe in home or at RISK, either from having too much living space to navigate or from not being able to get to public transportation easily, for example. As aging people take on <b>more health problems</b> , they are <b>more likely to feel at risk</b> from things that formerly had been resources. Will this push them toward institutions?
Sandra S. Butler, Nan Simpson, Mark Brennan and Winston Turner	Journal of Gerontological Social Work	2010, Vol. 53, pp. 665-681	Why do they Leave? Factors Associated With Job Termination Among Personal Assistant Workers in Home Care	Longitudinal study on caregivers in Maine found a high turnover, but those who remained were low-income with little access to health care	This longitudinal study helps inform my own study in that it identifies <b>who are likely to be caregivers, their risks</b> from low income and lack of health insurance, and that there is a high turnover among younger caregivers.

## Appendix F: Chart of articles used for literature review (cont.)

Author(s)	Publication	Year	Title	Synopsis	How does this article inform my thesis? (Is there a point people leave IHSS for homes?)
National Center on Elder Abuse	NCEA Research Brief	n.d.	How at Risk for Abuse are People with Dementia?	60 percent of caregivers of people with dementia were verbally abusive, as many as 10 percent were physically abusive and 14 percent neglected clients	Stats from published articles: Journal of Elder Abuse, Journal of the American Geriatrics Society, and the Gerontologist. <b>Caregivers self-reported</b> , and these stats underscore some of the risks to only remaining in the home with help from a potentially <b>abusive caregiver</b>
Rebecca Boyd and Judy A. Stevens	Age and Ageing	2009, Vol. 38, pp. 423-428	Falls and fear of falling: burden, beliefs and behaviours	Despite heightened fears and incidence of falling, few elderly reported changing habits to avoid it	The study from the Centers for Disease Control and Behavioral Risk Factors Surveillance System found that falls were common. <b>More likely to fear falling: single women older than 75.</b>
XinQi Dong, Melissa Simon, Carlos Mendes de Leon, Terry Fulmer, Todd Beck, Liesi Hebert, Carmel Dyer, Gregory Paveza, Denis Evans	Journal of the American Medical Association	2009, Vol. 302, No. 5	Elder Self-neglect and Abuse and Mortality Risk in a Community-Dwelling Population	Discusses elder abuse, the types of abuse and differentiates it from self-abuse or neglect	Self-neglect significantly was associated with increased mortality in a statistical analysis. <b>Defines abuse, self -abuse and neglect.</b>
Heidi Hartmann and Ashley English	Journal of Women, Politics & Policy	2009	Older Women's Retirement Security: A Primer	Women live longer but have lower overall lifetime earnings to contribute toward retirement	This piece <b>helps identify who the elderly are</b> and that people who get in-home care are most likely to be <b>women who live alone</b> who qualify because they are so poor

Appendix F: Chart of articles used for literature review (cont.)

Author(s)	Publication	Year	Title	Synopsis	How does this article inform my thesis? (Is there a point people leave IHSS for homes?)
Kadushin, Goldie	Health & Social Work	2004, Vol. 29, No. 3, pp. 219-232	Home Health Care Utilization: A Review of Research for Social Work	The author did an analysis of 64 studies and wrote a literature review to try to find common descriptors for in-home care clients	The author found that the likely client lives alone and needs help with a high number of daily-living tasks. If not living alone, the caregiver steps aside (initiates institutionalization) when the burden or demands are too high.
Rosemary Chapin, Mary Zimmerman, Kelley Macmillan, Roxanne Rachlin, Mitsuko Nakashima, Jan Moore, Daisy Schmidt and Melissa Cline	The University of Kansas School of Social Welfare Office of Aging and Long-Term Care	July 2000	Longitudinal Study of Customers Diverted through the CARE Program: Fiscal Year 2000	Longitudinal study in Kansas examined who was diverted from a nursing home to an in-home care program	Kansas has more older people and more people want to remain at home. This study offers illumination on <b>trends among an aging population</b> and shows that governments are trying out <b>different models of care for cost and efficacy</b> . The study compared those who were diverted to home care with those who were institutionalized.
Steven J. Katz, Mohammed Kabeto, and Kenneth M. Langa	Journal of the American Medical Association	December, 2000, Vol. 284, No. 23, pp. 3022-3027	Gender Disparities in the Receipt of Home Care for Elderly People With Disability in the United States	Disabled women who lived alone and disabled married women received much less informal care than disabled men	This highlights that <b>women need more care</b> than they have been getting and that <b>caregivers are overwhelmingly women</b> , as well. Even disabled women in married households were caregivers in some cases.

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